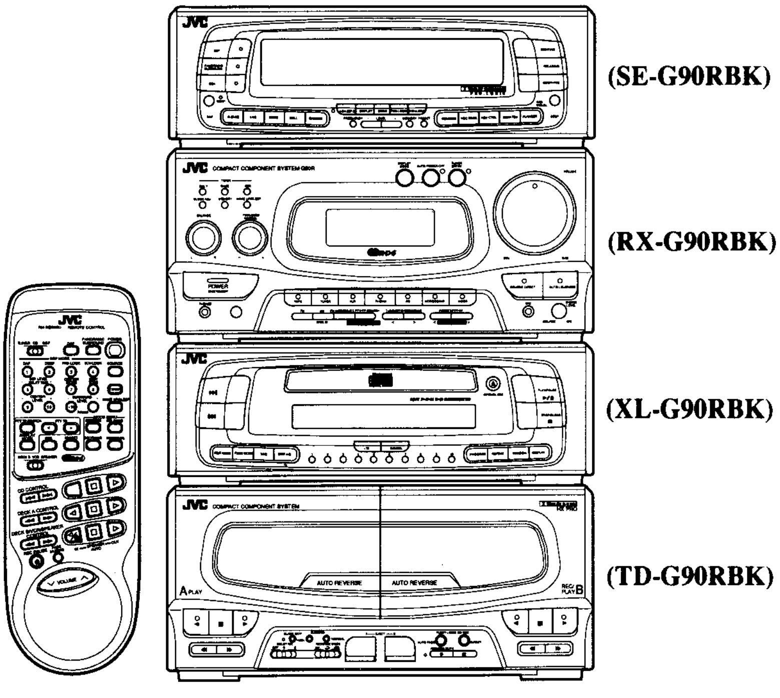
JVC

SERVICE MANUAL

COMPACT COMPONENT SYSTEM

XT-G90RBK

(Unit No. RX-G90RBK/SE-G90RBK XL-G90RBK/TD-G90RBK)


(SE-G90RBK)
(RX-G90RBK)
(XL-G90RBK)
(TD-G90RBK)

COMPACT
disc
DIGITAL AUDIO

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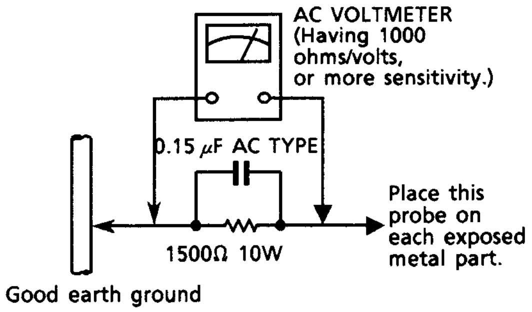
TD-G90RBK 9-1

No. 20487
MAY. 1994

Safety Precautions

1. The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute repalcement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage currnet check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, contorl shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.).
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10 W resistor paralleled by a 0.15 μF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and meausre the AC voltage across the resistor.
     Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.).
     This corresponds to 0.5 mA AC (r.m.s.).



Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

Important for Laser Products

1. CLASS 1 LASER PRODUCT
2. DANGER : Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. CAUTION : There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.
4. CAUTION : The compact disc player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when the drawer is open and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.
5. CAUTION : If safety switches malfunction, the laser is able to function.
6. CAUTION : Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

VARNING : Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

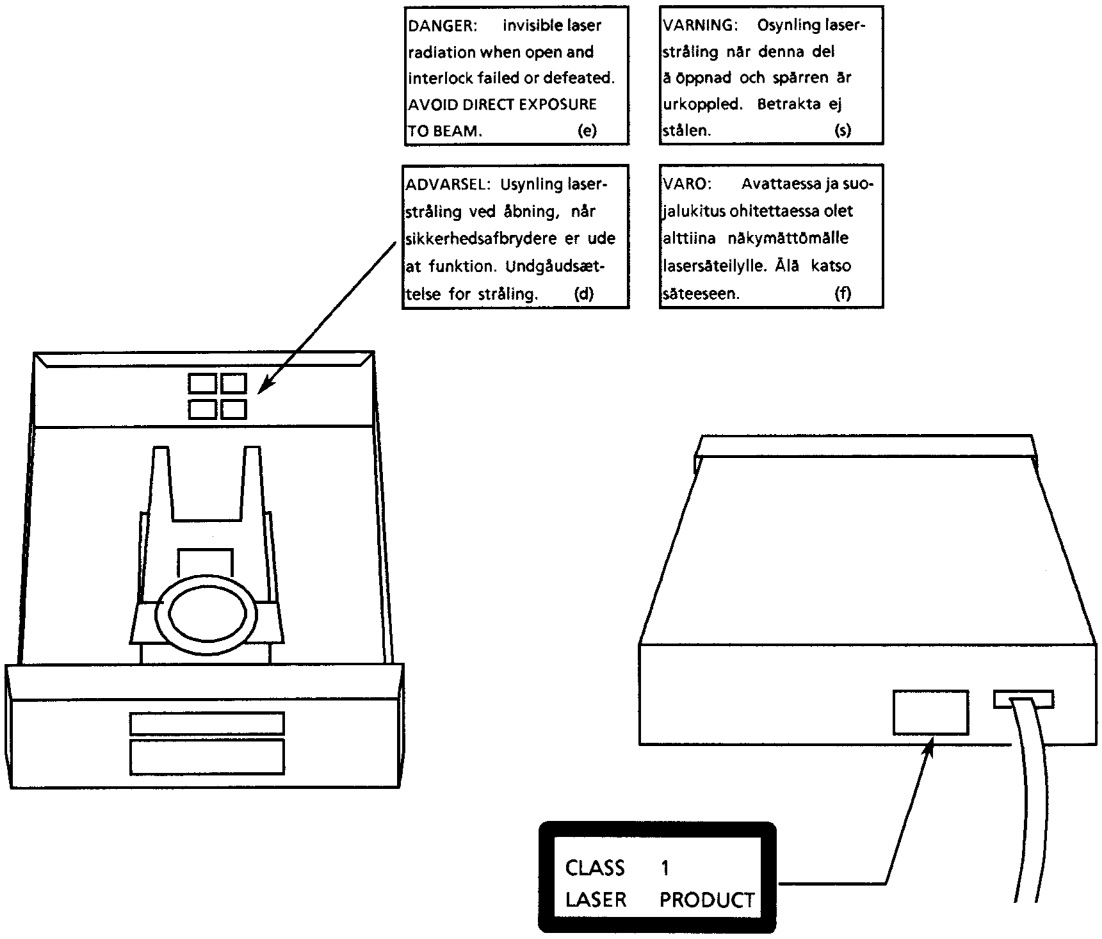
VARO : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

ADVARSEL : Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

ADVARSEL : Usynlig laserstråling ved åpning, når sikkerhetsbryteren er avslott. unngå utsettelse for stråling.

REPRODUCTION AND POSITION OF LABELS

WARNING LABEL



DANGER: Invisible laser radiation when open and interlock failed or defeated. AVOID DIRECT EXPOSURE TO BEAM. (e)

VARNING: Osynling laserstråling når denna del å öppnad och spärren är urkoppled. Betrakta ej stålen. (s)

ADVARSEL: Usynling laserstråling ved åbning, når sikkerhedsafbrydere er ude at funktion. Undgåudsættelse for stråling. (d)

VARO: Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen. (f)

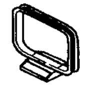
CLASS 1
LASER PRODUCT

CLASSIFICATION LABEL

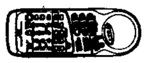
Easy Guide

Getting Started

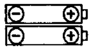
Check to be sure you have all of the following items, which are supplied with the XT-G90RBK.



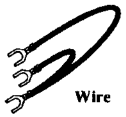
AM (MW/LW) Antenna



Remote Control



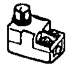
Batteries



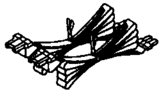
Wire

FM Wire Antenna (only for Germany)

FM Feeder Antenna (except for Germany)



Antenna Adaptor (except for Germany)

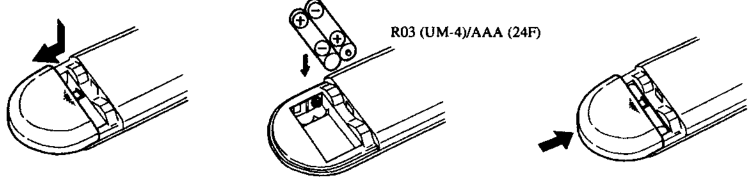


Speaker Control cords (for conecting the panoramic shifting speakers)

If anything is missing, contact your dealer immediately.

Putting Batteries in the Remote

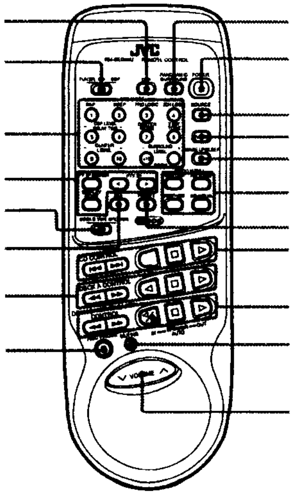
Pay close attention to getting the batteries in correctly—we've made it very easy, just match the + and – marks on the batteries with the + and – markings in the battery compartment.



CAUTION: Observe Proper Handling of Batteries.
To avoid battery leakage or explosion:

- Remove batteries when the Remote will not be used for a long time.
- When you need to replace the batteries, replace both batteries at the same time with new ones.
- Don't use an old battery together with a new one.
- Don't use different types of batteries together.
- Don't expose batteries to heat or flame.

What you can do from the Remote
Refer to the pages in parentheses for details.

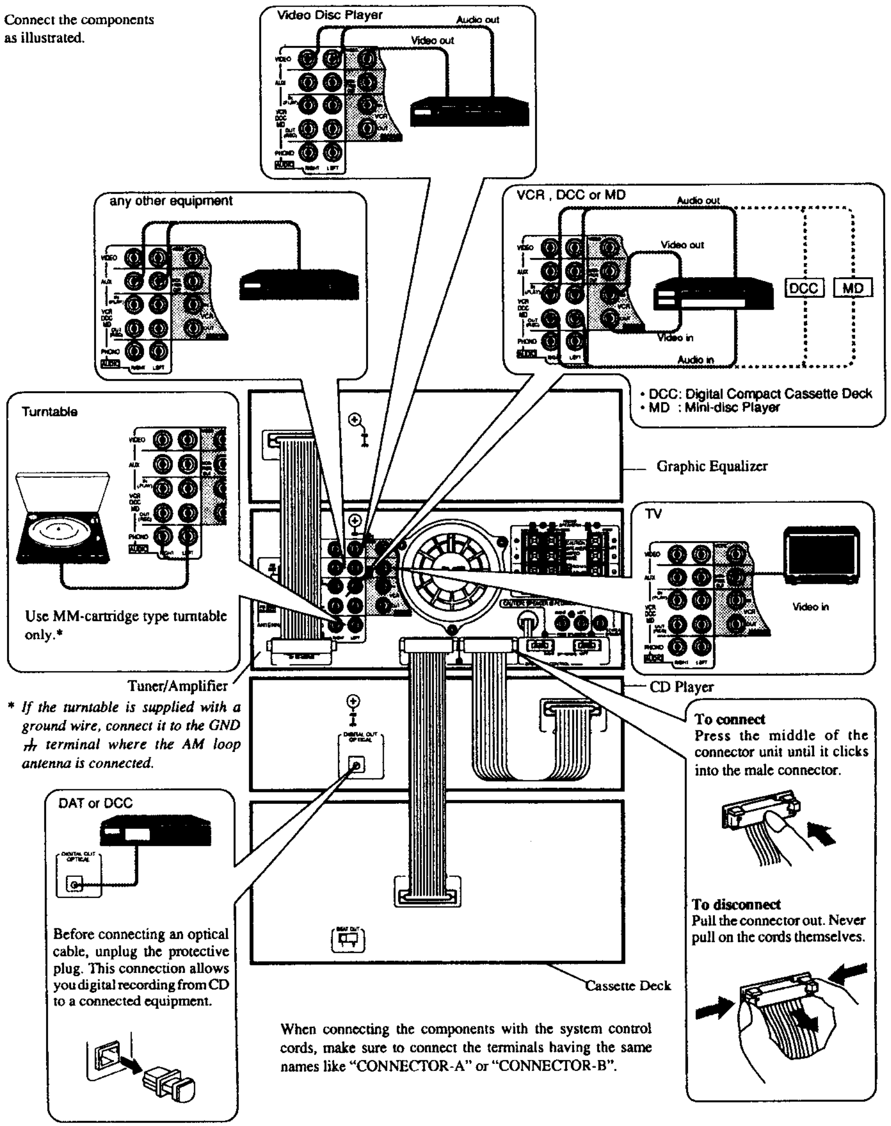


Turns on or off DSP modes (22)
TUNER/CD/DSP selector
Selects presets channel, CD tracks, or DSP programs
Operates RDS (14)
DECK B/VCR/SPEAKER selector
Turns on or off SEA modes (18)
Operates deck A
Sets deck B into recording pause mode

Turns on or off the panoramic shifting speakers' movement
Turns on the Unit or put it in STANDBY mode
Selects the sources
Selects tuner
Sets the Wake Up or Sleep Tmer (34)
Selects Mood Menus (23)
Selects SEA modes (18)
Operates CD
Operates deckB, VCR, or panoramic shifting speakers
Reduces the volume level
Change the volume level up and down

Connecting the System Control Cords and Connecting Auxiliary Equipment

Connect the components as illustrated.



• DCC: Digital Compact Cassette Deck
• MD : Mini-disc Player

Use MM-cartridge type turntable only.*

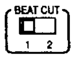
* *If the turntable is supplied with a ground wire, connect it to the GND ⏚ terminal where the AM loop antenna is connected.*

Before connecting an optical cable, unplug the protective plug. This connection allows you digital recording from CD to a connected equipment.

To connect
Press the middle of the connector unit until it clicks into the male connector.

To disconnect
Pull the connector out. Never pull on the cords themselves.

When connecting the components with the system control cords, make sure to connect the terminals having the same names like "CONNECTOR-A" or "CONNECTOR-B".



When recording an AM (MW/LW) broadcasting program, beat sounds may be heard and recorded.
Set the BEAT CUT selector to either 1 or 2, so that beat sounds will not be heard nor recorded.

CAUTION: First make all connections before plugging the Unit into an AC power outlet.

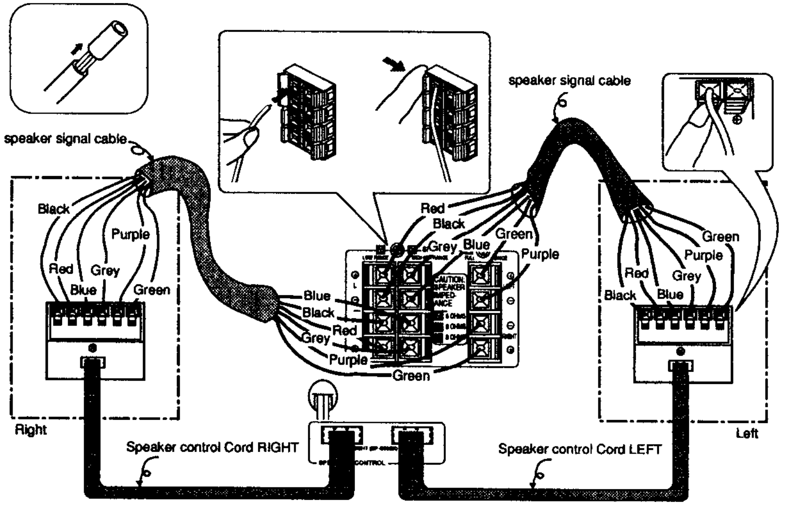
Connecting the Front Speakers

When you use the panoramic shifting speakers SP-G90BK

For each speaker connect one end of the supplied speaker signal cable to the speaker terminals on the back of the XT-G90RBK and one end to the speaker.

On the back panel:

1. Open each terminal.
2. Insert the end of the speaker signal cable as shown (be sure to remove the insulation at the end of each wire first).
3. Close the terminals to clamp the speaker signal cables firmly in place.
4. Connect the black (–), red (+), blue (–), grey (+), purple (–) and green (+) terminals of the right side speaker to the black (–), red (+), blue (–), grey (+) terminals marked **A**, **B** R, purple (–) and green (+) terminals marked **C** R on the XT-G90RBK.
   Connect the black (–), red (+), blue (–), grey (+), purple (–) and green (+) terminals of the left side speaker to the black (–), red (+) blue (–), grey (+) terminals marked **A**, **B** L, purple (–) and green (+) terminals marked **C** L on the XT-G90RBK.
5. Connect SPEAKERS CONTROL RIGHT and LEFT with the supplied speaker control cords.


speaker signal cable
speaker signal cable
Black
Purple
Red
Grey
Blue
Green
Red
Black
Grey
Blue
Green
Purple
Blue
Black
Red
Grey
Purple
Green
Green
Purple
Red
Grey
Black
Blue
Right
Left
Speaker control Cord RIGHT
Speaker control Cord LEFT

When you use your own speakers – Conventional speakers

1. Connect the (+) and (–) terminals of the right speaker to the grey (+) and blue (–) terminals marked **B** R on the XT-G90RBK.
2. Connect the (+) and (–) terminals of the left speaker to the grey (+) and blue (–) terminals marked **B** L on the XT-G90RBK.

Note: You can use only **B** *R and L terminals to connect conventional speakers.*

By adding the optional rear speakers and the optional center speakers, you can enjoy a more realistic sound with the XT-G90RBK.

Connecting the Rear Speakers

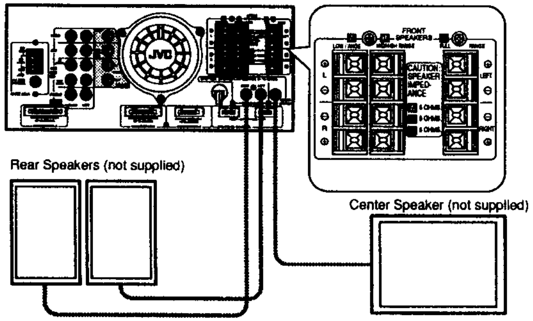
1. Connect the terminal of the right speaker to the terminal marked RIGHT on the XT-G90RBK.
2. Connect the terminal of the left speaker to the terminal marked LEFT on the XT-G90RBK.

Note: It is recommended to use the rear speakers SP-ES5BK.

Connecting the Center Speaker

Connect the terminal of the center speaker to the terminal marked CENTER SPEAKER on the XT-G90RBK.

Note: You can only use a center speaker which has 8 — 16 ohms speaker impedance.


JVC
FRONT SPEAKERS
CAUTION: SPEAKER IMPEDANCE
LEFT
RIGHT
L
R
Rear Speakers (not supplied)
Center Speaker (not supplied)

Connecting the FM and AM (MW/LW) Antennas

FM Antenna Connections

For Germany

A Using the Supplied Wire Antenna

The FM wire antenna supplied can be connected to a FM 75-ohm COAXIAL as a temporary measure.

B Using the Coaxial Type Connector (Not Supplied)

A 75-ohm antenna with coaxial type connector (DIN 45332) should be connected to the FM 75-ohm COAXIAL terminal.

For Other Continental Europe

C Using the Supplied Feeder Antenna

① Attach the feeder antenna to the supplied antenna adaptor as shown in the figure.

② Connect the antenna adaptor to the FM 75-ohm COAXIAL terminal.

D Using FM 75-ohm Antenna Cable (Not Supplied)

① Open the claws at both sides and remove the cover.

② Move the conductor wire from 1 to 2 using tweezers or similar tool (only when using coaxial cable).

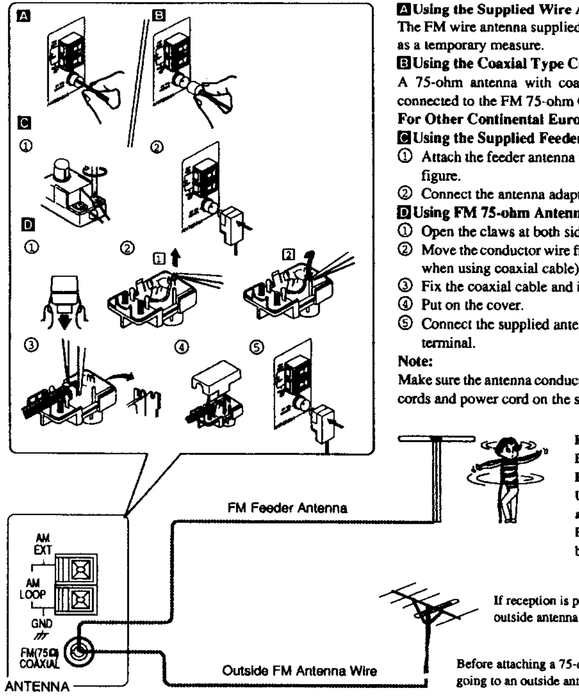
③ Fix the coaxial cable and its core.

④ Put on the cover.

⑤ Connect the supplied antenna adaptor to the FM 75-ohm COAXIAL terminal.

Note:

Make sure the antenna conductor do not touch any other terminals, connecting cords and power cord on the system. This could cause poor reception.


A
B
C
①
②
D
①
②
1
2
③
④
⑤
FM Feeder Antenna
AM EXT
AM LOOP
GND
FM(75Ω) COAXIAL
ANTENNA
Outside FM Antenna Wire

For Germany

Extend the supplied wire antenna horizontally.

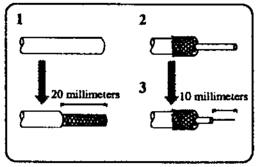
For other continental Europe

Unhold the loops of the supplied FM feeder antenna and extend them as shown.

Fasten them up in the position which gives you the best FM reception.

If reception is poor, connect the outside antenna.

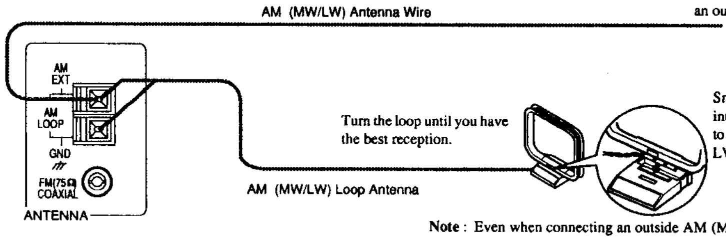
Before attaching a 75-ohm coaxial lead (the kind with a round wire going to an outside antenna), disconnect the supplied antenna.


1
2
20 millimeters
3
10 millimeters

How to Strip the 75-ohm Coaxial Cable

1. Strip back the outside covering of the 75-ohm coaxial cable to expose the braided metallic mesh.
2. Pull the mesh back over the cable as shown.
3. Strip the insulation about 10 mm back from the central wire.
4. Attach to the supplied antenna adaptor, as shown in the diagram above.

AM (MW/LW) Antenna Connections


AM (MW/LW) Antenna Wire
AM EXT
AM LOOP
GND
FM(75Ω) COAXIAL
ANTENNA
AM (MW/LW) Loop Antenna

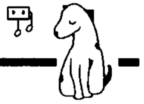
If reception is poor, connect an outside antenna.

Turn the loop until you have the best reception.

Snap the tabs on the loop into the slots of the base to assemble the AM (MW/LW) loop.

Note : Even when connecting an outside AM (MW/LW) antenna, keep the indoor AM (MW/LW) loop connected.

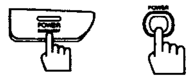
Basic Operations



Turning on the Unit

1. Press the POWER ON/STANDBY button or the POWER button on the Remote.
The LED on the Unit goes off.

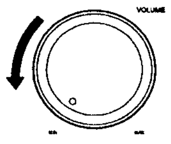
On the Unit **From the Remote**



To turn the Unit in STADBY mode
Press the POWER ON/ STANDBY button or the POWER button on the Remote again.
The LED on the Unit lights up.

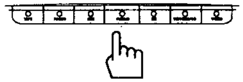
CAUTION: *The small amount of the power (16 watts) is always consumed even in STANDBY mode. To switch off the Unit completely, unplug the AC power cord from the AC outlet.*

2. Turn down the VOLUME control completely.



3. Select a source, start playing and adjust the VOLUME control.

On the Unit

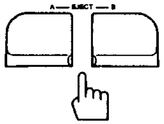


From the Remote

Each time you press the SOURCE button, the source changes as follows:
→TAPE→TUNER→AUX→PHONO→CD→VCR/DCC/MD→VIDEO→

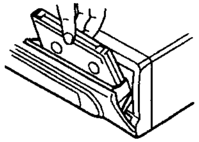
Playing a Tape

1. Press the EJECT button.

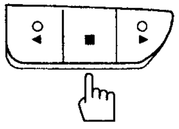


Note: *To play a tape recorded with Dolby NR , see page 11.*

2. Put a tape in deck A or deck B.



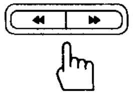
3. Press the ▶ (or ◀) button.



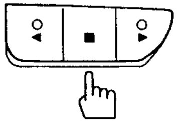
To stop playing
Press the ■ button.

Fast Winding or Rewinding

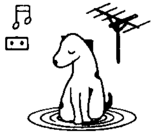
1. Press the ◀◀ or ▶▶ button.



CAUTION: *The use of C-120 (C-120 minutes turn around) or thinner tape is not recommended, since characteristic deterioration may occur and these tape easily jam in the pinch and the capstan.*



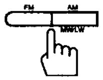
To stop fast winding or rewinding
Press the ■ button.



Receiving Radio Broadcasts

1. Press the FM or AM (MW/LW) button to select the band, or press TUNER on the Remote.

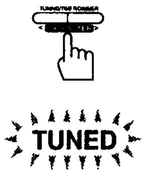
On the Unit



From the Remote

When you press the TUNER button, the last received station is tuned in.

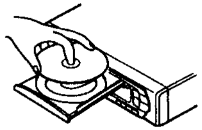
2. Press the TUNING/TIMER/DIMMER/CHARACTER < or > button to tune in the desired stations.
When the Unit tunes in the station, The TUNED indicator lights up on the display.



Playing CDs

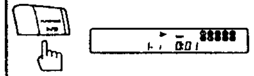
1. Press the ⏏ OPEN/CLOSE button .

2. Load a CD on the tray.



Note: *When using an 8 cm CD, place it on the inner circle of the tray.*

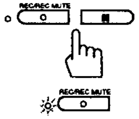
3. Press the PLAY/PAUSE ▶/⏸ button.
The CD starts playing.



To stop playing
Press the STOP/CLEAR ■ button.

Recording onto a Tape

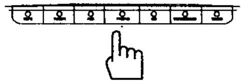
1. Press the REC/REC MUTE ○ button and the ⏸ button simultaneously.
The LED next to them lights up and the Unit is in recording pause.



Note: *To record a tape with Dolby NR , see page 26.*

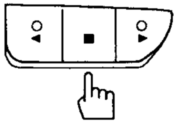
2. Start playing the source you want — CD, radio, etc.

On the Unit



From the Remote

3. Press the ▶ (or ◀) button, depending on which side of the tape you want record on, to start recording.

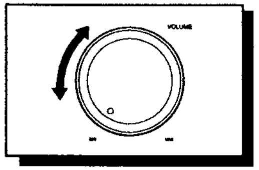


The LED on the ◀ (or ▶) button slowly blinks to indicate recording is now on.

To stop recording
Press the ■ button.

Common Operations

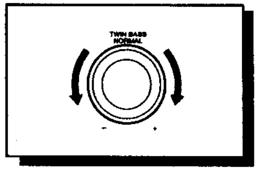
The following operations are commonly used when you play any sound source.



Adjusting the Volume

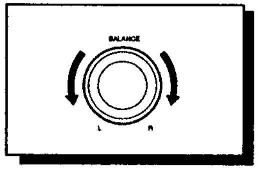
To increase the volume, turn the VOLUME control clockwise.
To decrease the volume, turn it counterclockwise.

> CAUTION: Always set the VOLUME control to MIN before starting any source such as the radio, tape, or CD player. If the VOLUME control is left turned up, the sudden blast of sound energy can permanently damage your hearing and/or ruin your speakers.



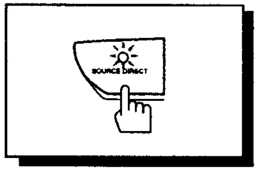
Adjusting the Bass Sound

You can reduce or increase the amount of bass reinforcement by adjusting the TWIN BASS control. When set to the NORMAL position, no bass reinforcement is applied.



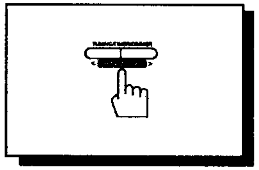
Adjusting the Speaker Output Balance

If the sounds you hear from the right and left speakers are unequal, you can adjust the speaker output balance with the BALANCE control.



High-fidelity Playback

When you press the SOURCE DIRECT button, the LED on the button comes on and "DIRECT ON" appears on the graphic equalizer display. By bypassing the sound effect circuits like SEA or DSP programs, the path of the audio signal will be shortened, giving a higher fidelity sound.



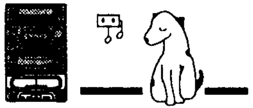
Dimmer Function (Tuner/Amplifier)

With this function you can control the display brightness while the Unit is turned off.
Press the TUNING/TIMER/DIMMER/CHARACTER < or > button.
<: makes the display dimmer while the Unit is off.
>: makes the display brighter while the Unit is off.

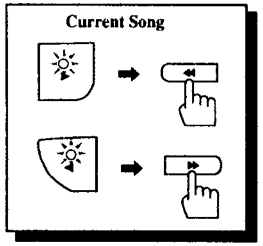
Listening with Headphones
A standard pair of headphones can be connected at the PHONES jack on the front panel. **Be sure to turn down the volume before connecting or putting on headphones, as high volume can damage both the headphones and your hearing.**
When you connect the headphones, no sound comes out from the speakers.

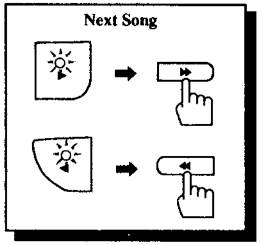
Feature Guide

Playing Tapes



If there are 4-second or longer blanks between tracks on recorded tapes, you can use Music Scan to find the beginning of a track.
For simple playback procedures, see page 7.





Music Scan (Finding Songs)

To find the beginning of a music track use Music Scan. Music Scan searches for blank portions that usually separates tracks, then plays the next track.

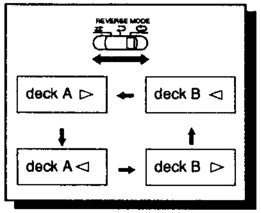
Finding the Beginning of the Current Song

Press the ◀◀ or ▶▶ button during play.
Make sure you press the ◀◀ or ▶▶ button in the opposite direction to tape play.
Searching stops automatically at the beginning of the current track, and the current track starts automatically.

Finding the Beginning of the Next Song

Press the ◀◀ or ▶▶ button during play.
Make sure you press the ◀◀ or ▶▶ button in the same direction as tape play.
Searching stops automatically at the beginning of the next track, and the next track starts automatically.

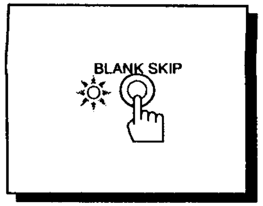
Notes
- *Music Scan works by detecting a 4-second blank at the beginning of each selection, so it won't work well if your tape has:*
  - *No blank at the beginning of a track.*
  - *Noise (often caused by much used or poor quality dubbing) which fills the blank with.*
  - *Long very soft passages or pauses in a track. Music Scan will detect these instead of the 4-second blanks.*
- *Music Scan only works on one tape at a time.*
  - *If you use Music Scan on deck A during recording on deck B, deck B enters recording pause mode.*
  - *If you start recording on deck B while Music Scan is used on deck A, Music Scan is stopped.*



Using REVERSE MODE Selector

When you play tapes, you can select the side to be played by using the REVERSE MODE selector.

⇄ : only one side is played
⊃ : both sides are played
⊂⊃ : both sides are played repeatedly.
When tapes are in both decks, continuous play follows the sequence diagramed at the left regardless where playback starts.
The sequence is repeated endlessly.

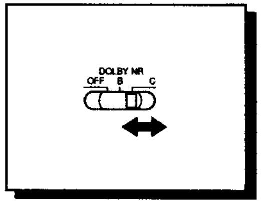


Skipping Blank Portions during Playback

If there is a blank portion of 10 seconds or longer on a tape, the Unit will automatically fast forward, and skip the blank portion, then play back the next track.

Press the BLANK SKIP button before or during play.
The LED next to it lights up.

To cancel the blank skip playback
Press the BLANK SKIP button again.
The LED next to it goes off.



Using the DOLBY NR * Selector

To play a tape recorded with Dolby NR, set the DOLBY NR selector to the same NR system (B or C) as was used when recording.
To play a tape recorded without Dolby NR, set the DOLBY NR selector to the OFF position.
If a tape is recorded with the Dolby NR system, playing it back with the same Dolby NR system will reduce tape hiss and improve the clarity of the sound.

What Is Dolby HX PRO?

Dolby HX PRO provides lineality in high-range frequency response during recording. Tapes recorded with this system retain the same characteristic even played back any other deck.
With Dolby HX PRO, the effective bias current is controlled in response to fluctuations in high-range frequency of the input signal, ensuring dynamic sound recording with minimal distortion and noise.

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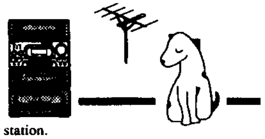
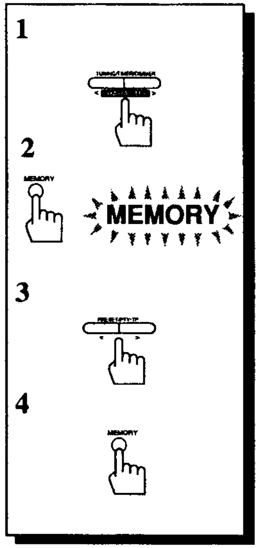
* *Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen. "DOLBY", the double-D symbol, and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*

Receiving Radio Broadcasts



You can browse through all the stations or use the preset function to go immediately to a particular station.
For tuning stations manually, see page 8.



Storing Preset Stations

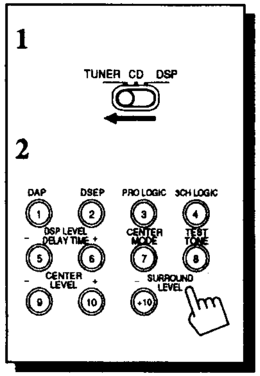
Once a station is assigned to a channel number, the station can be quickly tuned either from the Remote using the 10 keys or from the XT-G90RBK itself using the PRESET/PTY•TP < or > button to call up the channel number.

To Preset Radio Stations

1. **Tune in the station you want to preset (see page 8).**
2. **Press the MEMORY button.**
   On the Tuner/Amplifier display, the MEMORY indicator blinks for 5 seconds.
3. **Select a channel number by pressing the PRESET/PTY•TP < or > button while the MEMORY indicator is blinking.**
4. **Press the MEMORY button again and the station is assigned to the channel number showing on the display.**
   You can preset a total of 40 stations, either AM (MW/LW) and FM stations, or a mixture of both, at random.

To cancel a stored preset station
Storing a new station on a used number erases the previously stored one.

CAUTION: Preset stations may be erased when power is cut off to the Unit, as when it is unplugged from the AC outlet or a power failure occurs. If the preset stations are lost, simply set the stations again using the above procedure.

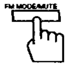


Tuning in a Preset Station

The Remote is very useful for this because you can select channels by number using the 10 keys.

1. **Set the TUNER/CD/DSP selector to the TUNER position.**
2. **Press the +10 button and 10 keys to select the channel you want.**
   Example: For preset number 5, press 5.
   For preset number 15, press +10 then 5.
   For preset number 20, press +10 then 10.

You can also tune in the stations by using the PRESET/PTY•TP < or > button on the Unit. Each time you press the PRESET/PTY•TP < or > button, the channel increases or decreases by one. If you hold the button down, the stations will cycle one after another.

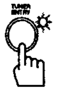


Selecting the FM Tuning Mode

When an FM stereo broadcast is hard to receive or noisy:
Press the FM MODE/MUTE button on the main Unit while listening to the radio so that reception improves, although you lose the stereo effect. In this state, you will hear noise while tuning into the stations. The MONO indicator lights up on the display.

To restore stereo effect

Press the FM MODE/MUTE button again so that the AUTO indicator appears on the display. In this state, when a program is broadcast in stereo, you will hear stereo sound; when in monaural, you will hear monaural sounds. In this state, you won't hear noise while tuning into stations.



Using the Tuner Entry Function

When the CD or tape playback ends, the source will automatically switch to the radio. Your listening enjoyment will thereby not be interrupted. So with Tuner Entry on, the Unit automatically shifts to the most recently tuned radio station when a tape or CD comes to an end.

Press the TUNER ENTRY button.
The LED next to it lights up.

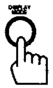
To cancel the Tuner Entry function

Press the TUNER ENTRY button again. The LED next to it goes off.

Note
In five situations even if the Tuner Entry function is on, it will not take effect, and the source will not switch to the radio after the CD or tape playback ends.
1) When you intentionally stop the CD or tape deck by pressing the STOP/CLEAR ■ button on the CD player or the ■ button on the tape deck.
2) When any timer activated CD or tape stops playing.
3) When you set the REVERSE MODE selector for tape play to the ⊂⊃ position.
4) When you use Repeat Play for CD.
5) When you set Auto Power Off.

Receiving FM Stations with RDS (Radio Data System)

RDS is a broadcasting service which a growing number of FM stations are now providing. It allows these FM stations to send additional signals along with their regular program signals. For example, the stations send their station names, and information about what type of program they broadcast, such as sports or music, etc.
When tuned to an FM station which provide the RDS service, the RDS indicator lights up, the station frequency (and then the station name if sent) is displayed.
The TP (Traffic Program) indicator lights up on the display when the received broadcast carries traffic announcements, and the TA (Traffic Announcement) indicator lights up while a traffic announcement is being received.



What Information Can RDS Provide

With the XT-G90RBK, you can watch three types of RDS service as well as two other indications on the display.
To show them on the display, press the DISPLAY MODE button while listening to the radio. Each time you press the button, the display changes to show the following information:

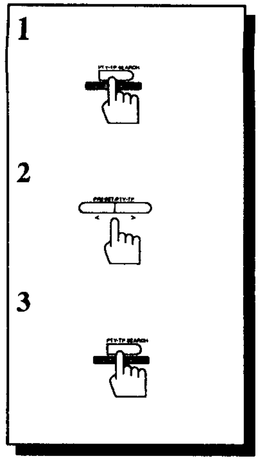
PS (Program Service):	While searching, "PS" appears and then station names commonly known will be displayed. "NO PS" appears if no signal is sent.	These are the three RDS services
PTY (Program Type):	While searching, "PTY" appears and then types of broadcast programs will be displayed. "NO PTY" appears if no signal is sent.	
RT (Radio Text):	While searching, "RT" appears and then text messages the station sends will be displayed. "NO RT" appears if no signal is sent.	
Character Mode:	8 characters you have set yourself. (See page 15.) "NO CHARA" appears if you have not used this function or if you have tuned to preset number over 10.	
Station Frequency:	Station frequencies.	

Note
If searching finishes at once, "PS", "PTY", and "RT" will not appear on the display.

If you press the DISPLAY MODE button while tuning to an AM (MW/LW) station, the display alternates between station frequency and character mode since RDS is not available in AM (MW/LW) broadcasts.

Descriptions of the PTY codes and TP
With the XT-G90RBK, you can receive the following PTY and TP signals.

NEWS:	News
AFFAIRS:	Topical program expanding on the current news or affairs
INFO:	Programs on medical service, weather forecast, etc.
SPORT:	Sports events
EDUCATE:	Educational programs
DRAMA:	Radio plays
CULTURE:	Programs on national or regional culture
SCIENCE:	Programs on natural sciences and technology
VARIED:	Other programs like comedies or ceremonies
POP M:	Pop music
ROCK M:	Rock music
M.O.R. M:	Middle-of-the-road music (usually called "easy listening")
LIGHT M:	Light music
CLASSICS:	Classics
OTHER M:	Other music
ALARM:	Emergency broadcasts
NONE:	Undefined
TP:	Broadcasts which carry traffic announcements



To search the Program by PTY codes and TP

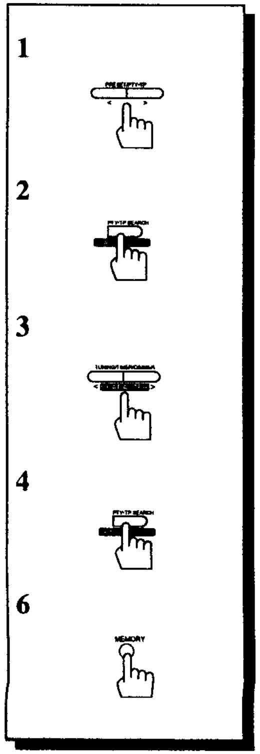
One of the advantages in the RDS service is that you can locate a particular kind of program by specifying the PTY codes.

To search a program using the PTY codes, follow this procedure:

1. **Press the PTY·TP SEARCH/CHARACTER SET button (or the PTY·TP SEARCH button on the Remote) while listening to the radio.**
   The display alternates between "PTY TP" and "SELECT."

2. **Select the PTY code with the PRESET/PTY·TP < or > button (or the PTY·TP <, > button on the Remote) within 4 seconds and show the PTY (or TP) code on the display.**
   Each time you press the button, the display gives you the following:
   NEWS←→AFFAIRS←→INFO←→SPORT←→EDUCATE←→DRAMA←→
   CULTURE←→SCIENCE←→VARIED←→POP M←→ROCK M←→
   M.O.R. M←→LIGHT M←→CLASSICS←→OTHER M←→ALARM←→
   TP←→NEWS

3. **Press the PTY·TP SEARCH/CHARACTER SET button (or the PTY·TP SEARCH button on the Remote) within 4 seconds again.**
   - While searching, the display alternates between "SEARCH" and the selected PTY code.
   - The Unit searches 40 preset channels and stops when it finds the one you have selected. To continue searching after the first stop, press the PTY·TP SEARCH/CHARACTER SET button again while the indications on the display blink. If no program is found, "NOT FOUND" appears on the display.
     - If you select TP, the Unit will stop searching when it finds a broadcast carrying traffic announcements. However, this does not necessarily mean that you can listen to the traffic announcements at that time. Rather it means that you will get them when they are broadcast.



Character Mode

You can give names (8 characters) to any station (FM and AM (MW/LW)) regardless of the RDS service availability, and show them on the display by pressing the DISPLAY MODE button repeatedly. To do this, you need to preset the stations you want to name into the first ten preset numbers.

To give a name, follow this procedure:

1. **Press the PRESET/PTY·TP < or > button and select a preset number from 1 to 10 on the display.**

2. **Press the PTY·TP SEARCH/CHARACTER SET button within 4 seconds.**

3. **Press the TUNING/TIMER/DIMMER/CHARACTER < or > button within 10 seconds to select the first character.**
   Each time you press the button, the character changes. The available characters are listed on page G-6.

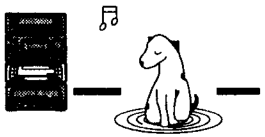
4. **Press the PTY·TP SEARCH/CHARACTER SET button to move the character insertion position on the display.**

5. **Repeat steps 3 and 4.**

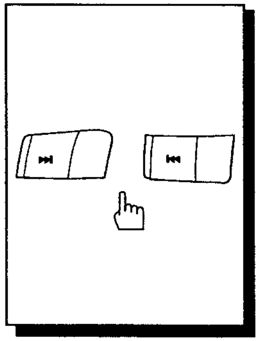
6. **Press the MEMORY button within 10 seconds.**
   The Unit memorizes the name you have given. Once you have given the name to a preset channel, this name appears first whenever you tune to this preset channel. (If RDS sends the PS signal, it will appear after the name you have given.)

- It is not necessary to input all the 8 characters. When you finish, press the MEMORY button.

Playing CDs



You can use various function such as Auto Search, Random Play, Repeat Play, and Program Play.



Locating a Particular Track or a Particular Portion of the Track

To Find a Track You Want

Each time you press briefly and release the ⏮ or ⏭ button, the track changes by one.

- Press and release the ⏭ button to go ahead one track at a time.
- Press and release the ⏮ button to go back one track at a time.
- While CD is not playing, holding the ⏮ or ⏭ button will change the tracks continuously.

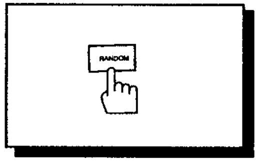
To locate a track directly with the Remote

1. **Set the TUNER/CD/DSP selector to the CD position.**

2. **Press the +10 button and the 10 keys to select a track number.**
   Example: for track 5, press 5. For track 15, press +10 then 5. For track 20, press +10, then 10.

To Find a Particular Point You Want During Play

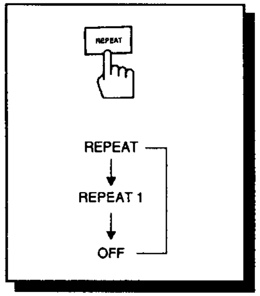
Holding down the ⏮ or ⏭ button on the main Unit will fast forward or fast reverse the CD so you can quickly find the particular portion of a track you want to listen to.



Using Random Play

Tracks is played in no special order.
Before starting a CD, press the RANDOM button. The RANDOM indicator lights up and Random Play starts. When all of the tracks have been played, Random Play stops.

To stop and cancel Random Play
Press the STOP/CLEAR ■ button.



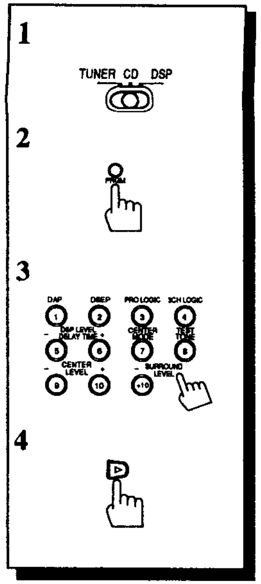
Using Repeat Play

You can have either all tracks or the individual track currently playing repeat as many times as you like.
Each time you press the REPEAT button, it cycles from OFF, which turns the REPEAT indicator out on the display, to REPEAT which repeats all tracks in order or according to the program you have set, and REPEAT 1 which repeats the currently playing track.

To cancel Repeat Play
Press the REPEAT button until the REPEAT or REPEAT 1 indicator on the display goes off.

Note
Repeat Play can be used with Program Play or Random Play.

- *With Program Play, the program you made is repeated.*
- *With Random Play, all the tracks on the CD are repeated in a different order each time.*



Using Program Play

You can arrange the tracks to play in any order you like. You can program up to 32 tracks, and you can repeat tracks if you wish.

The Remote is very useful for making a program.

1. **Set the TUNER/CD/DSP selector to the CD position.**

2. **Press the PRGM button. The PROGRAM indicator lights on the CD display.**

3. **Press the + 10 button and the 10 keys to select the track numbers you want.**

4. **Press the ⊳ button on the CD CONTROL section of the Remote to start the program.**
   The first track you programmed starts to play.

To stop the CD during Programmed Play

Press the □ button.

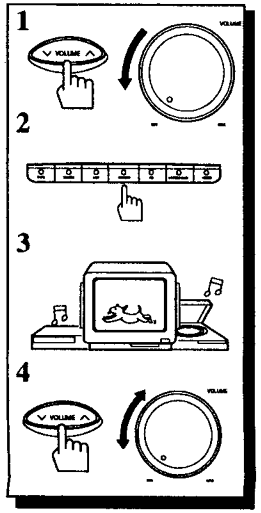
To cancel the program, press the PRGM on the Remote or the PROGRAM button on the main Unit.

A Few Hints to Make Programming Easier

- If you want to change the number of a track you just entered, press CANCEL on the Unit, and enter another number.
- If you want to change the entire program, press the STOP/CLEAR ■ button on the Unit while CD is not playing, and then you can start over.
- To view the order of the tracks in your program when it's playing, press the □ button on the Remote or the STOP/CLEAR ■ button on the Unit, then press the ⏮ or ⏭ to display the order of the tracks. Each time you press the ⏭ button the next selection in your program is displayed. (Press the ⏮ button for the previous selections.)
- To add a track to your program during play, press the 10 keys on the Remote. Any tracks you add will appear at the end of the current program.

Listening to a VCR , Turntable or other Equipment through Your XT-G90RBK

By playing a VCR, Turntable or other connected equipment through the XT-G90RBK, you can often dramatically improve the sound quality, as well as gain control over how the music or program sounds.



1. **Set the Unit's volume to its lowest setting. Use < VOLUME > on the Remote, or turn the VOLUME control all the way counterclockwise.**

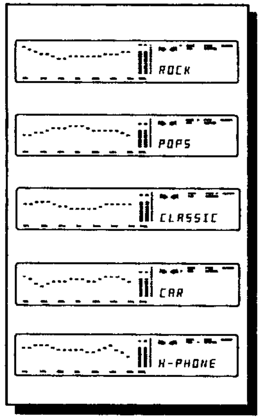
2. **Select the connected equipment with the source selecting buttons on the Unit or press the SOURCE button on the Remote repeatedly.**

3. **Switch on the connected equipment and start it playing.**
   When you have a JVC's VCR, you can use the Remote supplied with XT-G90RBK to operate the VCR. Set the VCR's Remote Mode to "A" and the DECK B/VCR/SPEAKER selector on the Remote to the VCR position. The buttons on the DECK B/VCR/SPEAKER section of the Remote can operate the VCR.

4. **Adjust the volume.**

Adjusting the Sound

You can select one of five pre-programmed SEA patterns (Preset mode) or to create your own sound patterns (Manual mode).



Using the SEA Preset Patterns

Press the PRESET button repeatedly to select the SEA preset pattern you want.
The LED next to it lights up.
Each time you press the PRESET button, the display changes from one pattern to the next as shown below.

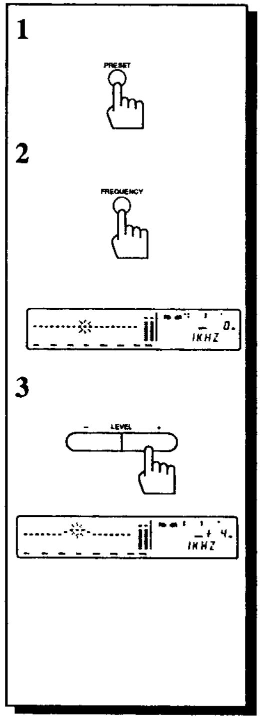
ROCK	Increases both treble and bass sounds.
POPS	Increases the richness and fullness of the vocal sound.
CLASSIC	Adds depth and brilliance to the sound.
CAR	For recording onto car stereo tapes.
H.PHONE	For recording onto headphones stereo tapes.

You can also use the Remote to select the SEA patterns.

1. **Set the TUNER/CD/DSP selector to the DSP position.**

2. **Press the PRESET button to select the SEA pattern.**

To cancel the SEA effect, press the SEA button.
Each time you press the button, the SEA effect switches on and off repeatedly.



Creating Your Own SEA Patterns

1. **Press the PRESET button.**
   The LED next to it lights up.

2. **Press the FREQUENCY button to set the frequency range to be changed.**
   The frequency range level bar on the display blinks.
   Each time you press the FREQUENCY button, the frequency range changes. While it is blinking you can set the frequency level.

3. **Press the – LEVEL + button to set the level, while the selected frequency range level bar is blinking.**

4. **Repeat steps 2 and 3 to adjust other frequency ranges.**
   You can adjust 7 frequency ranges.

Note
Although the five SEA preset patterns cannot be changed, an individual sound pattern can be created based on a preset pattern. When you make any change to the SEA preset pattern, the Unit automatically enters the Manual mode so you can modify and store the pattern you create.

To store the pattern

1. **Press the MEMORY button after creating your own SEA pattern.**
   Your own SEA pattern blinks on the display.

2. **While the SEA pattern is blinking, press the PRESET button to select the memory number from among MANUAL A, B, C, D, or E.**

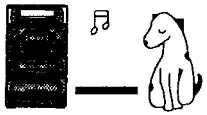
3. **Press the MEMORY button again to store the pattern in memory.**
   When the pattern appears on the display, it is now stored.

To record the SEA pattern

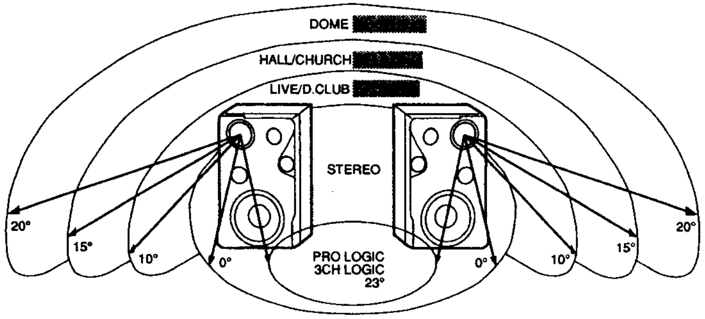
To record sound together with a SEA pattern (either a preset or manual one), first turn on SEA and select the desired SEA pattern. The music will be enhanced according to the pattern you selected. SEA patterns cannot be applied to the following types of recording:

- A song cannot be dubbed (at either normal or high speeds) with a SEA sound pattern.
- When the amplifier's SOURCE DIRECT is on, songs cannot be recorded with a SEA pattern.

Using DSP (Digital Signal Processor) Programs

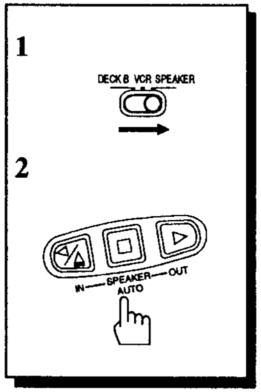


The XT-G90RBK has 12 DSP programs: Dolby Surround (Dolby Pro Logic, Dolby 3ch Logic), DAP modes (D.CLUB, LIVE, DOME, HALL, CHURCH), DSEP modes (SQUEEZE, VOCAL MASKING, KEY CONTROL, SCRATCH, FLANGER). With these programs and the panoramic shifting speakers the sound field can be enlarged to give a more realistic sound. You can choose the sound atmospheres from these 12 DSP programs.


DOME
HALL/CHURCH
LIVE/D.CLUB
STEREO
PRO LOGIC
3CH LOGIC
23°
20°
15°
10°
0°
0°
10°
15°
20°

Notes

- *Panoramic shifting speakers inside the speaker cabinet will shift corresponding to the respective DAP mode (see page 22) and Mood Menu (see page 23). The speakers shift automatically inward or outward to give you the dynamic sound fields. The mode can be set from either the Unit or the Remote.*
- *In Dolby Surround, the speakers will shift inward to give the same effect as if you are using a center speaker and make the spoken words easier to hear.*
- *Normally, the speakers face directly forward.*


1
DECK B VCR SPEAKER
2
IN
SPEAKER
OUT
AUTO

To change the speaker angle from the Remote.

1. Set the DECK B/VCR/SPEAKER selector to the SPEAKER position.
2. Press the IN/OUT button to change the angle (3°, 8°, 13°, 18° and 23°).
   The indicator blinks to indicate the speaker's direction of movement.
   - Press the IN button to shift the speakers inward.
   - Press the OUT button to shift the speakers outward.

To get back the preset speaker angle for the DAP program selected

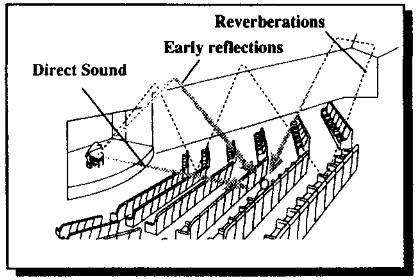
Press the AUTO button.

Notes

- *You can apply DAP modes when you record.*
- *A sound cannot be dubbed with the DAP modes (at either normal or high speeds).*

To have the speakers face directly forward during the DAP mode

Press the PANORAMIC SURROUND so that the indicator goes off. (The selected DAP program is still active.)


Reverberations
Early reflections
Direct Sound

Using Dolby Surround

The sound heard in a concert hall or a movie theater consists of direct sound and indirect sound: early reflections and reverberations. The reflected sound and the reverberations are always delayed by the distances of the ceiling, walls from the listener. The early reflections and reverberations are some of the most important elements of the acoustic surround effects.

The Dolby Surround has been developed to reproduce these important elements at home. To watch the soundtracks of video software bearing the DOLBY SURROUND mark* which includes the same encoded surround information as found in Dolby Stereo films, the XT-G90RBK can provide you with 2 Dolby Surround modes (Dolby Pro Logic and Dolby 3CH Logic).

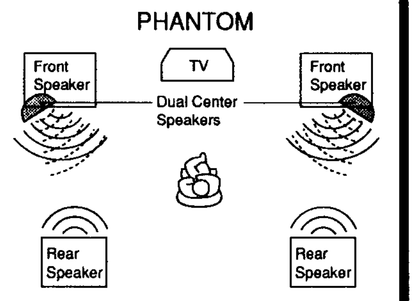
DOLBY PRO LOGIC: Select this mode when the optional rear speakers (SP-ES5BK) are connected.

DOLBY 3CH LOGIC: Select this mode when no rear speakers are connected.

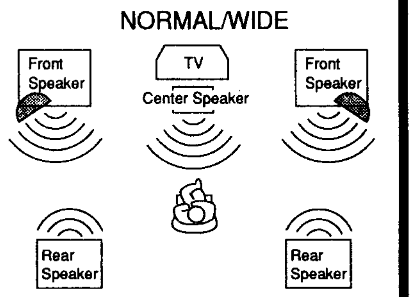
Both mode can be used either with or without a separate center speaker. See below.

DOLBY PRO LOGIC

Without separate center speaker

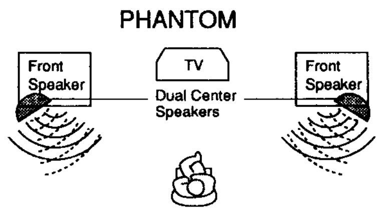

PHANTOM
Front Speaker
TV
Front Speaker
Dual Center Speakers
Rear Speaker
Rear Speaker

With separate center speaker

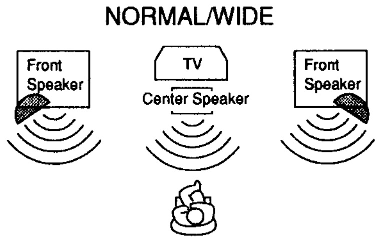

NORMAL/WIDE
Front Speaker
TV
Front Speaker
Center Speaker
Rear Speaker
Rear Speaker

DOLBY 3CH LOGIC

Without separate center speaker

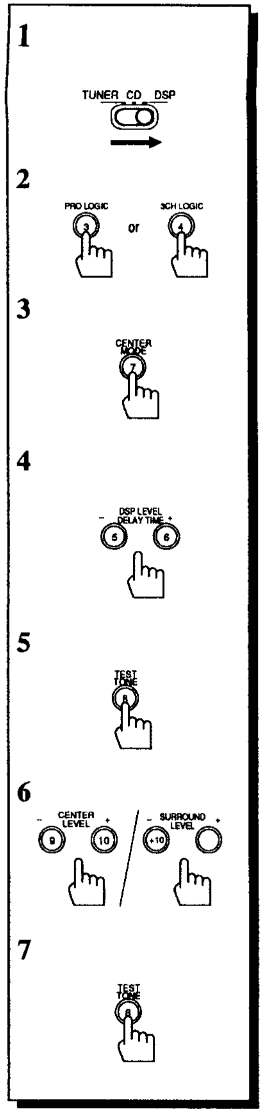

PHANTOM
Front Speaker
TV
Front Speaker
Dual Center Speakers

With separate center speaker


NORMAL/WIDE
Front Speaker
TV
Front Speaker
Center Speaker

---

* *Manufactured under license from Dolby Laboratories Licensing Corporation. DOLBY and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.*



Preparing for Using Dolby Surround

1. **Set the TUNER/CD/DSP selector on the Remote to the DSP position.**

2. **Press the PRO LOGIC or the 3CH LOGIC button to set the mode.**
   PRO LOGIC: when you use the rear speakers
   3CH LOGIC: when you use no rear speakers

3. **Press the CENTER MODE button.**
   Each time you press the CENTER MODE button, the mode changes as follows.

PHANTOM	Select this mode when you don't use a separate center speaker.
NORMAL	Select this mode when the size of the separate center speaker is smaller than that of the front speakers or when you use the panoramic shifting speakers as the center speaker.
WIDE	Select this mode when the size of the separate center speaker is the same as that of the front speakers.
OFF	You can shut off the output of the center channel signal.

When you use a separate center speaker with panoramic shifting speakers
Press the 4CH/SEP.C button (the indicator lights up).

4. **Press the –DSP LEVEL DELAY TIME+ button to set the delay time of the delayed sound.**
   Each time you press the button, the delay time changes by 1ms between 15ms and 30ms.
   - When the distance of the rear speakers are far from your listening position as compared to that of the front speakers, you can set the delay time of the sound from the rear speakers.
     ex.

Distance	Set to
far	15ms
same	20ms
near	30ms

5. **Press the TEST TONE button to check your setting.**
   When you press the button, test tone comes out from each speaker in the following order:

→ LEFT → CENTER → RIGHT
SURROUND ←

6. **Press the –CENTER LEVEL+ button to set the sound level (–∞, –12 — +6dB) of the front speakers.**
   Press the –SURROUND LEVEL+ button to set the sound level (–∞, –12 — +6dB) of the rear speakers.
   - Set each sound level from the front and rear speakers to the same level.
   - You cannot set the surround level when you select the 3CH LOGIC mode.
   - You cannot set the center level when you select PHANTOM or OFF in step 3.

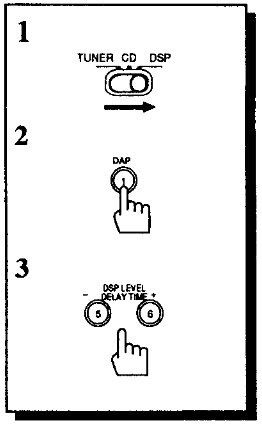
7. **Press the TEST TONE button to finish the preparation.**
   The test tone shuts off.

To use Dolby Surround

Once you have set the Dolby Surround adjustments you can use the same adjustments every time you want to enjoy Dolby Surround.

1. **Press either the PRO LOGIC or 3CH LOGIC button.**

2. **Play a sound source processed with Dolby Surround on which the DOLBY SURROUND mark is labeled.**
   The panoramic shifting speakers shifts inward to reproduce realistic voice and sound effects.



DAP (Digital Acoustic Processor) Mode

The XT-G90RBK employs the digital acoustic processor to give you being-there feeling. With five DAP modes the sound field can be enlarged to give a more realistic atmosphere without adding rear speakers.

The Remote is very useful for making this setting.

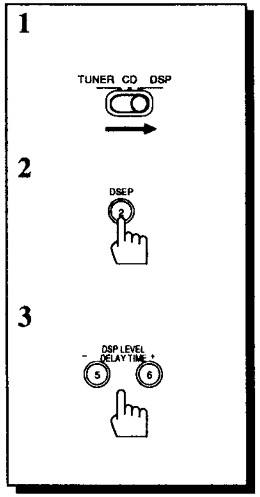
1. **Set the TUNER/CD/DSP selector to the DSP position.**

2. **Press the DAP button to select the mode.**
   Each time you press the DAP button, the mode changes as follows.

D. CLUB	gives a throbbing bass beat.
LIVE	gives the feeling of a live stage.
DOME	gives the spacious feeling of a domed stadium.
HALL	gives clear vocals and the feeling of a recital hall.
CHURCH	reproduces the echo effect of a stone-walled church.

When you use the Unit, just press the desired DAP mode button directly.

3. **Press the –DSP LEVEL DELAY TIME+ button to change the effect level.**
   Each time you press the button, the effect level changes by 1dB (between –6dB and +6dB). 0dB is the normal level.



DSEP (Digital Special Effects Processor) Mode

With five DSEP modes a powerful sound can be reproduced.
The panoramic shifting speakers inside the speaker cabinet shift to face directly and, with the full-range speakers, reproduce a powerful sound. The mode can be set either on the Unit or from the Remote.

The Remote is very useful for making this setting.

1. **Set the TUNER/CD/DSP selector to the DSP position.**

2. **Press the DSEP button to select the DSEP mode.**

SQUEEZE	gives clear and realistic vocal sound
VOC MASK	the singers voice in the sound source is reduced.
KEY CTRL	you can freely change the tone level.
SCRATCH	creates scratching noise while you press and hold the button.
FLANGER	gives a sound like a dynamic parallel wave.

When you use the Unit, just press the desired DSEP mode button directly.

3. **Press the –DSP LEVEL DELAY TIME+ button to change the effect level.**
   SQUEEZE: 5 levels (–2 — +2)
   VOC MASK: 13 levels (–6 — +6) — Tone level can be changed.
   KEY CTRL: 13 levels (–6 — +6)
   SCRATCH: (–1 and +1)
   FLANGER: 5 levels (–2 — +2)

When you use the Unit, just press the desired DSEP mode button (except SQUEEZE and FLANGER) repeatedly.

To cancel DAP or DSEP mode

Press the DSP button so that the indicator goes off.

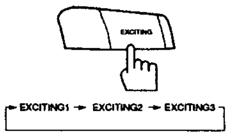
When you use the rear speakers

Press the 4CH/SEP.C button so that the LED next to it lights up.
Although you can reproduce the sound with a DAP or DSEP effect by using only the front speakers, adding the optional rear speakers will enhance the effect. (In this case, the panoramic shifting speakers does not shift the angle.)

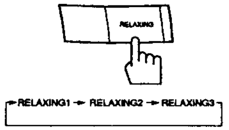
Notes on the DAP and DSEP modes

- *When the 4CH/SEP.C indicator is lit, the sound can be recorded with a DAP or DSEP effect. However, you can not dub a tape with a DAP or DSEP effect.*
- *When you listen with the DAP or DSEP effect by using the headphones, turn on the 4CH/SEP.C indicator.*

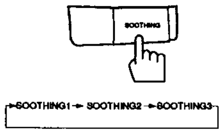
EXCITING (1—3)


EXCITING
EXCITING1 → EXCITING2 → EXCITING3

RELAXING (1—3)


RELAXING
RELAXING1 → RELAXING2 → RELAXING3

SOOTHING (1—3)


SOOTHING
SOOTHING1 → SOOTHING2 → SOOTHING3

INDIVIDUAL

INDI-
VIDUAL

Using Mood Menu

The Mood Menu allows you to select one of four special effect sound modes. Selecting a mode will set the respective SEA pattern, DSP mode, and shift panoramic shifting speaker angle automatically. The Individual Mode allows you to store your own settings in memory.

EXCITING (1—3)

Press the EXCITING button.
Regardless of the music source, a sharp, upbeat sound is produced.
Each time you press the button, the effect level changes among 3 levels.

RELAXING (1—3)

Press the RELAXING button.
A beautiful, subtle sound is obtained. The sound feels like a refreshing breeze which gives a relaxed feeling.
Each time you press the button, the effect level changes among 3 levels.

SOOTHING (1—3)

Press the SOOTHING button.
By controlling the dynamic range, a rich, easy listening sound can be maintained. Low-volume sounds drowned out by larger-volume sounds are boosted and peak sounds are suppressed.
Each time you press the button, the effect level changes among 3 levels.

INDIVIDUAL

Press the INDIVIDUAL button so that the stored setting is called up.
You can use the Individual Mode to create your own customized sound effect by combining one of the DSP programs (Dolby Surround, DAP, and DSEP) and one of the SEA patterns. The individual mode settings can be stored in memory.

To store your own settings into the Individual Mode

1. Select the desired DSP program. (See page 19—22.)
2. Select the desired SEA pattern and adjust the frequency range if you want. (See page 18.)
3. Press and hold the INDIVIDUAL button to store your own pattern.

Notes

- *Do not keep the INDIVIDUAL button pressed to call up the stored setting; otherwise, you may store a new setting rather than calling up the previous one.*
- *When you press the SOOTHING button, the LED on the PANORAMIC SURROUND button goes off.*

Using the 4CH/SEP. C (4 Channel/Separate Center) Button

Press the 4CH/SEP. C button so that the LED next to it lights up.
You can control the following settings.

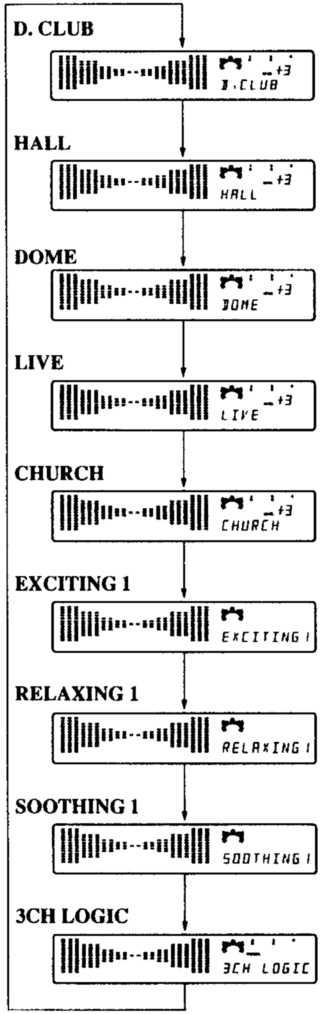
1) For DAP and DSEP modes:
   - You can use the 4 channel (front and rear speakers) effect by connecting optional rear speakers.
   - You can record any source with either the DAP or DSEP effect. But remember, you can not use both effects at the same time.
2) For Dolby Surround:
   When connecting a separate center speaker, you can use it with the 4CH/SEP.C indicator lit.

To cancel the 4CH/SEP. C mode, press the 4CH/SEP. C button again so that the LED goes off.

Demo Mode

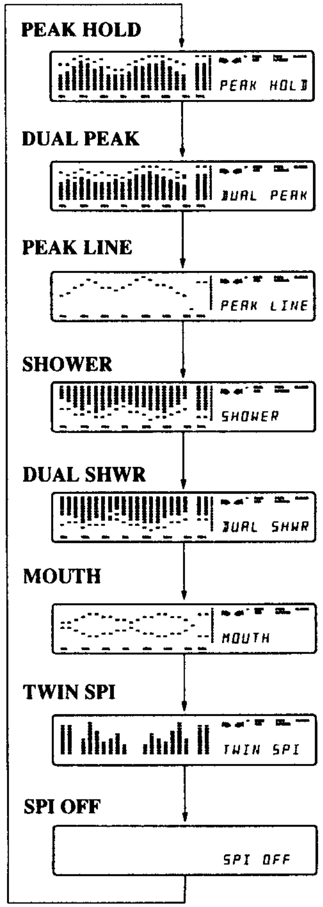
Use the Demo Mode to try the various sound modes for a song.
During play, press the DEMO button.
Nine sound patterns cycle automatically.

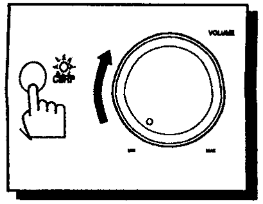
To cancel the Demo Mode, press the DEMO button again.

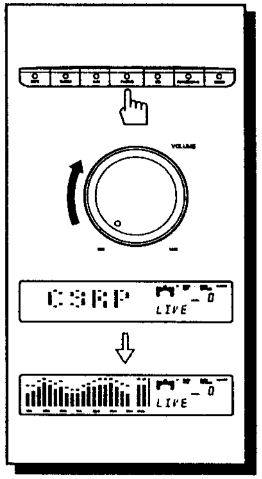

D. CLUB
D.CLUB
HALL
HALL
DOME
DOME
LIVE
LIVE
CHURCH
CHURCH
EXCITING 1
EXCITING 1
RELAXING 1
RELAXING 1
SOOTHING 1
SOOTHING 1
3CH LOGIC
3CH LOGIC

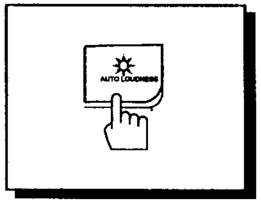
Display Mode

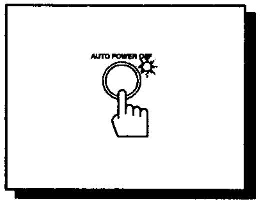
During play, press the DISPLAY button on the graphic equalizer. Each time you press the button, the display shows the various sound patterns.
DUAL PEAK and DUAL SHOWER show also the SEA pattern simultaneously.


PEAK HOLD
PEAK HOLD
DUAL PEAK
DUAL PEAK
PEAK LINE
PEAK LINE
SHOWER
SHOWER
DUAL SHWR
DUAL SHWR
MOUTH
MOUTH
TWIN SPI
TWIN SPI
SPI OFF
SPI OFF









CSRP (COMPU LINK SOURCE RELATED PRESET SYSTEM) Function

CSRP is the electronic feature that presets volume, display mode and other control functions. The XT-G90RBK has four CSRP functions; Volume CSRP, Time Link CSRP, Auto Lewdness, Auto Power Off.

Volume CSRP

Press the CSRP button (the CSRP indicator lights up) while the Unit is on. The VOLUME control is automatically set to around the most recently used level. When you turn off the Unit, the VOLUME control is automatically turned down.

Time Link CSRP

When you turn off the Unit with the CSRP indicator lit, Time Link CSRP stores the following items into the CSRP memory automatically.

- Volume level
- DSP mode (see page 19)
- SEA preset pattern (see page 18)
- Display mode (see page 24)

These four items are stored for each source and for each time range.

* *One day is divided into our time ranges; 6:00—, 12:00—, 18:00— and 24:00—.*

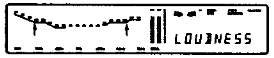
To call up the Time Link CSRP

Select the sources while the CSRP indicator is lit.

Auto Loudness

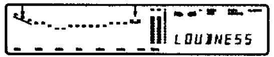
When you press AUTO LOUDNESS button (the indicator on it lights up), the SEA characteristic will change in accordance with the volume level. This means that at low volume, insufficient bass and treble are automatically compensated for, so you can have a full sound at any volume level.

At low volume level



The bass and treble are automatically increased.

At high volume level



The setting approaches the normal SEA characteristic.

Auto Power Off

You can fall asleep to music while listening to CD or tape. The XT-G90RBK will turn off by itself rather than play all night.

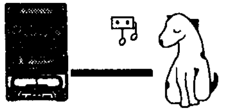
Press the AUTO POWER OFF button while listening to CD or tape.

When CD or tape play is over, the Unit will automatically turn off.

Notes

- *The Repeat Play of CD player (see page 16) does not work with Auto Power Off.*
- *The Tuner Entry (see page 13) does not work with Auto Power Off.*
- *Ending of tape play depends on the Reverse Mode setting (see page 10).*
  Tape play ends either after one side is played or after both sides are played.

Recording onto Tape



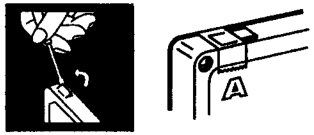
Recording from one tape to another is called dubbing.

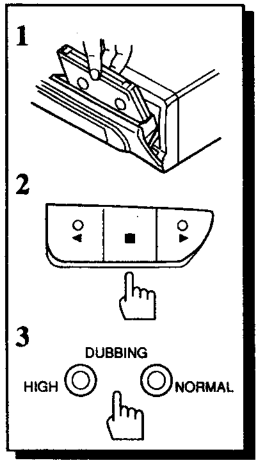
You can dub at regular speed for highest quality, or at high speed with a slight loss in sound quality.

With high speed it takes only about one-half the time to copy a tape. For regular recording procedure, see page 8.

Things to know before start recording

- It should be noted that it may be unlawful to re-record tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast or cable program and in any literary, dramatic, musical, or artistic work embodied therein.
- To reduce hiss noise, set the DOLBY NR selector either to the B or to the C position. (See page 11.)
- Cassettes have a special feature so you won't accidentally record over a tape you want to save. Two small tabs on the back, one for side A and one for side B, can be removed to prevent erasure or re-recording. To record on a cassette with the tabs removed, you must cover the holes with tape first. However, when a Type II tape is used, only cover part of the hole as shown below, since the other part of the hole is used to detect the tape type.
- Type I, II and type IV tapes can be used for recording.
- If recordings you make have excessive noise or static, the Unit may be too close to a TV which was on during recording. Either turn off the TV or increase the distance between the TV and the XT-G90RBK.





High Speed Dubbing or Normal Speed Dubbing

Although the quality of the dubbed tape is a little less, high speed dubbing is a very convenient way to record from one tape to another. You can only use deck B to make recordings. Deck A is for playback only.

1. **Put the tape you want to copy *from* into deck A, and the tape to be copied *onto* in deck B.**
2. **On both decks, press either the ◀ or ▶ button while pressing the ■ button, in order to select the playing and recording side.**
3. **Press either the DUBBING HIGH or the DUBBING NORMAL button.**

Notes

- *During dubbing, you can listen to another source such as the radio or the CD player, just as if you weren't dubbing.*
- *The sound cannot be dubbed with neither SEA sound effects nor DSP effects.*
- *During dubbing, when you press the AUTO POWER OFF button, the Unit automatically turns off after dubbing is over.*

To dub on both sides

Set the REVERSE MODE selector to either ⊃ or ⊂⊃. Dubbing starts from the front side of both deck A and B.

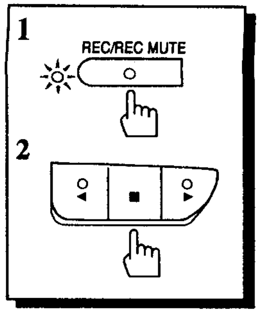
To Record Selections from Several Different Tapes

When you want to take selections from several different tapes and combine them on one tape during dubbing, follow these steps:

1. **Press the ■ button on deck A.**
   This causes deck A to stop, so you can change tapes, and deck B makes a 4-second blank and pauses.
2. **Change the tape in deck A.**
3. **Press either the DUBBING HIGH or NORMAL button (the same one you are using now) to start deck A playing and deck B recording again.**

Note

Dolby NR is inactive in dubbing mode regardless of the setting of the DOLBY NR switch. The dubbed tape automatically contains the same processing as the source tape.

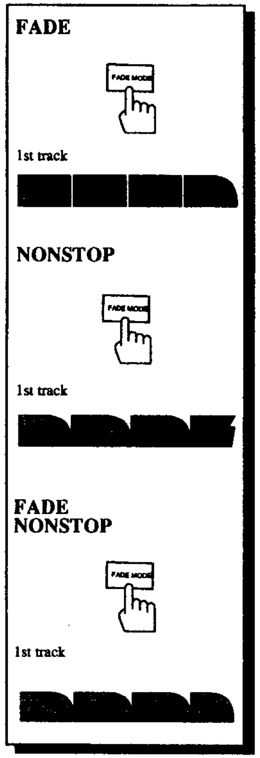


Making a 4-second Blank on a Recorded Tape

1. **Press the REC/REC MUTE ○ button during play.**
   The LED next to it blinks for 4 seconds and deck B enters recording pause mode.

   To make a blank portion longer than 4 seconds, keep the button pressed for the length of time you want the blank to be.
   When the button is released, deck B enters recording pause mode.

2. **Press the ◀ or ▶ button to restart recording.**



Recording from CD — Fuzzy CD Recording

Since the XT-G90RBK provides 3 types of Fade modes and 4 types of CD Editing modes, you can make a variety of CD recordings by combining these 7 modes.

To Use the Fade Mode

There are 3 types of Fade mode; FADE, NONSTOP, FADE NONSTOP (a combination of NONSTOP and FADE).
Each time you press the FADE MODE button, the Fade Mode changes in the following sequence.

FADE → NONSTOP → FADE,NONSTOP → OFF

(You will see these changes on the CD display)

FADE : At the end of the tape, the XT-G90RBK automatically goes back to the beginning of the last track and re-records it, this time gently fading out at the end.

- If you have set the REVERSE MODE selector to ⊃ or ⊂⊃ , side B starts recording at the beginning of the last track on side A. So you get the whole track, even though part of it was cut off when the tape ran out on side A.

NONSTOP: Every track ends by fading out, and the next track starts as soon as fading-out is over. Thus, you can make a tape with no blank portions between tracks. At the end of the tape, however, this mode does not make the end of the track fade out, if the track is cut off when the tape runs out.

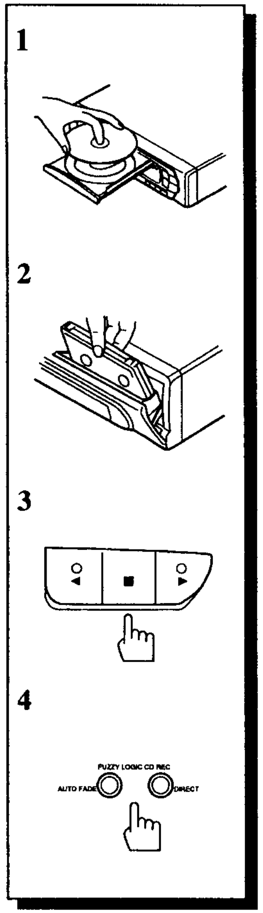
FADE
NONSTOP: Using this mode you can record the entire tape without any blanks. Every track ends by fading out, and at the end of the tape, the last track fades out instead of cutting off abruptly when the tape runs out, just like FADE.

- If you have set the REVERSE MODE selector to ⊃ or ⊂⊃, side B starts recording at the beginning of the last track on side A.

Note
NONSTOP and FADE NONSTOP modes cannot be used with the Multi Edit mode (see page 29).

To record with sound effects

When you start recording with Fuzzy CD Recording or CD Edit, the special effects cannot be changed without stopping recording, and often having to start over. If you need different sound effects for each track, use the standard recording features described on page 8.



Fuzzy CD Recording

If the recording level is too high, distortion will result; On the other hand, if the recording level is too low, the sound volume will be low. So, it is very important to check the peak level of the source tracks before recording. Furthermore, it is necessary to check the tracks' overall level. With the Fuzzy CD Recording feature, if the tracks' overall level is high, the recording level will be set lower, and, if the tracks' overall level is low, the recording level will be set higher. In this way, the optimum recording level is set according to the sound inclination of the tracks as well as the peak level. The conventional peak search function does not take into account the tracks' overall balance when setting the recording level; therefore, the recording level tended to be low. Fuzzy CD Recording gives a balanced recording level which matches different kinds of tracks.

1. **Load a CD in the tray.**

2. **Put a tape in deck B.**

3. **Select the side to record on, by pressing either the ◀ or ▶ button while pressing the ■ button on deck B.**

4. **Press either FUZZY LOGIC CD REC AUTO FADE or DIRECT button.**
   The tape starts recording 10 seconds before the CD starts, making a 10-second blank at the beginning of the tape to insure the entire selection is recorded.

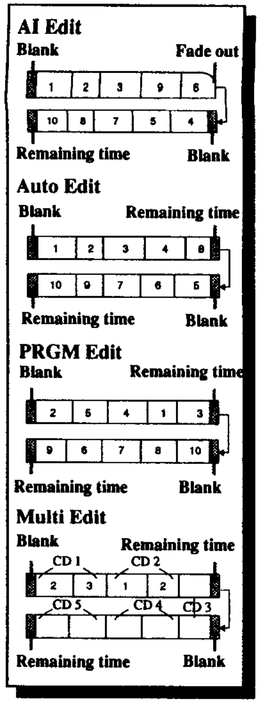
   AUTO FADE starts recording with AI Edit (page 29) and FADE mode (page 27).
   DIRECT starts recording from the first track to the end.

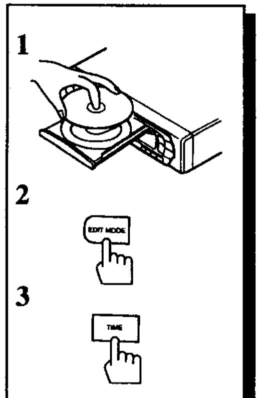
   - When FUZZY LOGIC CD REC (either AUTO FADE or DIRECT) is pressed, the optimum recording level will be determined by the fuzzy search, then the recording will start from the first CD track. (Since the fuzzy search will search the entire CD, it will take a little time.)
   - During the fuzzy search, the track number, number of tracks, playing time, etc., will change accordingly.
   - If the last recorded track cannot fit on side A, it will be re-recorded with fade-out.
   - When the REVERSE MODE selector is set to either ⊃ or ⊂⊃ , side B recording will start after a blank portion of 10 seconds is made. The recording will continue with the last track recorded with a fade-out on side A.
   - The last track on side B will end by fading-out.
   - If the inserted tape has not been rewound, it will be rewound automatically before recording begins.

To stop recording

Press the ■ button on deck B or the STOP/CLEAR ■ button on the CD player.

Note
The tracks can be recorded with a specified sound effect (SEA pattern and DSP programs). Sound effects cannot be changed during recording.





to be continued

Using CD Edit Mode

The XT-G90RBK has four CD Edit modes; AI Edit, Auto Edit, Program Edit and Multi-Edit. To take advantage of these Edit modes, read the following instructions carefully.

What is AI Edit?

This is an editing function which complements the Auto Edit mode (below). You can use it to maximize the use of the remaining tape length. When the tape comes to its end, the FADE mode will function automatically. Up to 16 tracks can be edited for one side.

What is Auto Edit?

To prevent the beginning of the track from not being recorded, the last track will be replaced automatically in accordance with the remaining tape length. The editing will start with the earlier tracks and the tracks will be selected so they can fit on the tape. No track is selected twice. However, depending on the remaining time, the same track may be selected twice to fill in the recording time at the end of the tape. Up to 16 tracks can be edited for one side.

What is PRGM (program) Edit?

Using this mode you can select which CD tracks go on which side of the tape, and in what order.

What is Multi Edit?

Using this mode you can select tracks from several different CDs. The NONSTOP and FADE NONSTOP modes cannot be used with Multi Edit mode.

Operating procedures

1. **Load a CD in the tray.**

2. **Press the EDIT MODE button to select the desired CD Edit mode you want to use.**
   Each time you press the button the indicator is displayed as follows in the CD display.

   → AI → AUTO → PRGM → MULTI → OFF

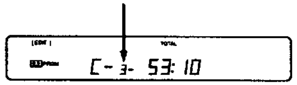
3. **Press the TIME button to select the time length.**
   Each time you press the button, the pre-programmed tape length is shown on the display as follows.

   → 40 → 46 → 50 → 54 → 60
   90 ← 80 ← 74 ← 70 ← 64 ←

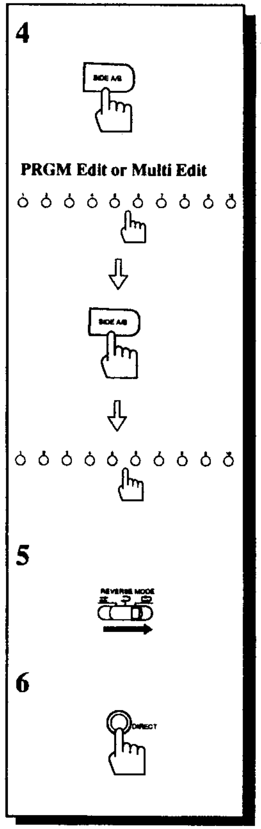
   If you want to use the Remote, you can set the tape length by using the +10 button and 10 keys. (Make sure that the TUNER/CD/DSP selector is set to the CD position.)

   ex. C-30: +10, +10, 10.
   C-46: +10, +10, +10, +10, 6.
   C-74: +10, +10, +10, +10.....Press the +10 button seven times,
   then press 4 button.

   This number shows how many times you have pressed the +10 button.



to be continued



4. **Press the SIDE A/B button to set the tape length.**

   When you have selected the AI Edit or Auto Edit
   The tracks which can fit on side A and B will be automatically selected in accordance with the specified tape length. By repeatedly pressing the SIDE A/B button you can check which tracks have been programmed for which side of the tape.

   When you have selected the PRGM Edit
   Select the track numbers for side A with the 10 keys.
   Press the SIDE A/B button.
   Select the track number for side B.

   When you have selected the Multi Edit
   Select the track numbers from the first disc with the 10 keys.
   When you have selected the Multi Edit, you can select tracks from different discs (up to 10 tracks from one disc).

5. **Put a tape in deck B and set the REVERSE MODE selector to the ⊂⊃ position.**

6. **Press the FUZZY LOGIC CD REC DIRECT button.**
   After a blank of 10 seconds is made at the beginning of the tape, the recording starts. If the inserted tape has not been rewound, it will be rewound automatically before the recording begins.

7. **When you have selected the Multi Edit**
   Deck B enters recording pause mode, when the first disc play ends.
   Change the disc and select the tracks again, then press the FUZZY LOGIC CD REC DIRECT button. If you want to record on side B, press the SIDE A/B button and repeat this procedure.

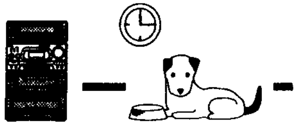
To stop the recording

Press the STOP/CLEAR ■ button.

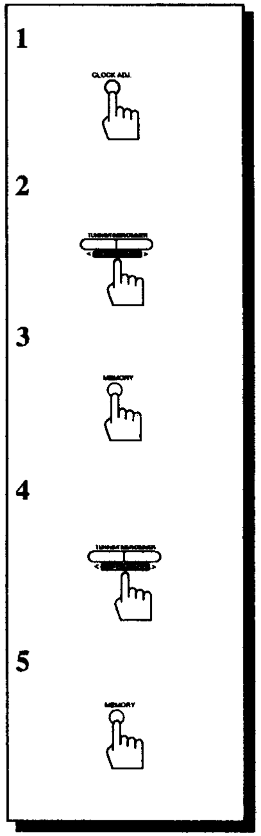
To delete the last selected track (only for PRGM Edit and Multi Edit)

Press the CANCEL button in stop mode. Each time you press the button, the last selection will be deleted.

Using the Timers



The timers let you control recording and playing functions automatically.
Recording Timer—Unattended recording of radio broadcasts. You can set the starting time and recording duration.
Wake Up Timer/Sleep Timer—Wake up to music from any source. Fall asleep and have your XT-G90RBK turn off automatically after a certain length of time.
Once Timer/Daily Timer—You can program the Unit to come on playing a source at a particular time, and then shut off at a special time.

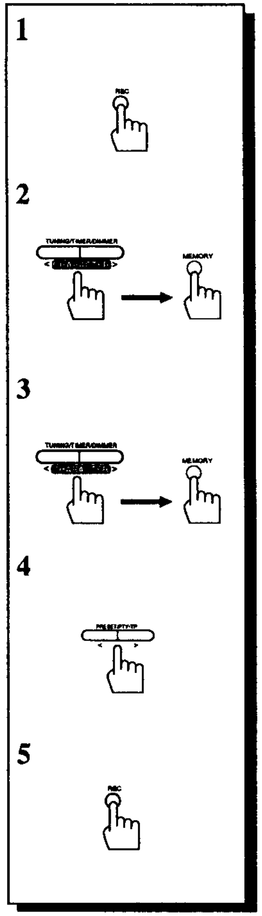


Setting the Clock

The timers depend on the clock: If the clock is right, the timers will work as you expect, but if the time is incorrect on the clock then the timers will also be incorrect. So, let's set the clock first.

1. **Press the CLOCK ADJ. button.**
2. **Set the hour by pressing the TUNING/TIMER/DIMMER/CHARACTER < or > button.**
   Each time you press it, the hour advances by one. Hold the button down, and the clock will advance one hour at a time.
3. **Press the MEMORY button, when the correct hour is showing on the display.**
   The hour is set.
4. **Set the minutes by pressing the TUNING/TIMER/DIMMER/CHARACTER < or > button.**
   Each time you press it the minutes advance by one. Hold the button down, and the minutes advance in 10 minute increments.
5. **Press the MEMORY button again.**
   The minute is set, and the clock is set and starts from zero second.

> If the clock has not been set or if there has been a power outrage, "0:00" will be displayed and "CLOCK" will blink.
> If there is a power failure, the clock loses its setting, the display shows "0:00," and it must be reset.
> You can set the clock and the Timers whenever the XT-G90RBK is turned off, but still connected to a live power source.



Recording Timer

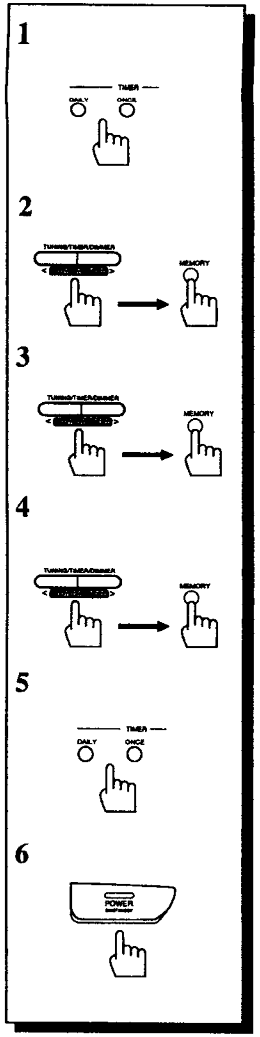
With the recording timer you can make a tape of a radio broadcast automatically whether or not you are there to start the XT-G90RBK. For the timer to work correctly, you need to make sure of two things in addition to setting the time for the radio and tape deck to come on:

- A long enough tape must be in deck B.
- The clock must be set to the correct time.

1. **Press the REC button.**
   As long as the indicators are blinking on the display, you can continue with the setting process. If you wait too long, and they stops blinking before you are done, just press the REC button twice and start over.
2. **Set the time you want the radio to come on and the tape in deck B to start recording.**
   Use the TUNING/TIMER/DIMMER/CHARACTER < or > button and the MEMORY button just like setting the clock. (See page 31)
3. **Set the time you want the radio and deck B to shut off.**
   Use the TUNING/TIMER/DIMMER/CHARACTER < or > button and MEMORY button just like setting the clock. (See page 31)
4. **Press the PRESET/PTY·TP < or > button to select the preset channels.**
   At the end of the set length of time the radio and deck B will shut off.
5. **Press the REC button again.**
   The Unit will memorize the setting.
   When the recording timer switches the XT-G90RBK on, the VOLUME control will automatically be set to MIN.
   Notice that the REC indicator is lighted up on the display whenever the Recording Timer is set.

If you do not want the timer to operate but want to keep the setting
Press the REC button so that the REC indicator on the display goes off.
To reactivate the timer, press the REC button again so that the REC indicator lights up.

Note
You will see "VOLUME-0" on the display after setting is complete or while checking the timer contents. This indication means that the volume level during timer recording is set to minimum.



Once Timer/Daily Timer

Once Timer works only once.
Daily Timer executes the timer operation at the same time everyday.

1. **Press the ONCE or DAILY button which you want to set.**
   The ONCE or DAILY indicator (whichever you have chosen) blinks on the display.

2. **Press the TUNING/TIMER/DIMMER/CHARACTER< or > button to set the start time and the stop time.**
   Use the TUNING/TIMER/DIMMER/CHARACTER < or > button and MEMORY button just like setting the clock. (See page 31)

3. **Press the TUNING/TIMER/DIMMER/CHARACTER < or > button to select the source, and then press the MEMORY button.**
   Each time you press it the display will cycle from one source to the next. When the source you want is showing, press the MEMORY button. The Unit will memorize the setting.

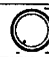
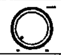
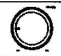
Setting the Source

Indicator	Source played
TUNER	TUNER
CD ---	CD
TAPE	TAPE
-----	the most recently used source

- When TUNER is selected
  You need to select a preset station by using the PRESET/PTY•TP < or > button.
- When CD is selected
  You can designate the first track to play from the first 20 tracks on the CD by using the PRESET/PTY•TP < or > button.

4. **Press the TUNING/TIMER/DIMMER/CHARACTER < or > button to set the volume, then press the MEMORY button.**
   Each time you press it the display cycles from one volume setting to the next as shown in the table below. When you press the MEMORY button, the Unit will memorize the setting.

Setting the volume

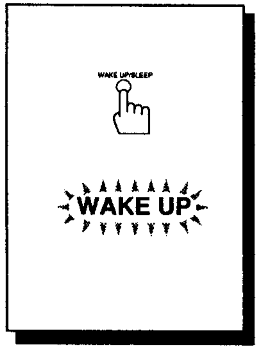
Display	Volume
VOLUME --	Volume level at the last setting before turning off the Unit
VOLUME – A	
VOLUME – B	
VOLUME – C	

5. **Press the ONCE or DAILY button.**
   The timer indicator you have selected remains lit on the display and shows you the timer is set.

6. **Press the POWER button to turn the Unit off.**

If you do not want the timer to operate but want to keep the setting
Press the ONCE or DAILY button so that the ONCE or DAILY indicator disappears from the display.
To reactivate the timer, press the ONCE or DAILY button again so that the ONCE or DAILY indicator lights up.

Note
When the start time comes, the VOLUME control gradually turns up to the set position.
For example, if your set position is VOLUME-B, the VOLUME control first turns up to and stays at the VOLUME-A position briefly, then turns up to the VOLUME-B position.



Wake Up Timer

With this timer you can wake up to music from a CD, tape or your favorite radio program.
- The Wake Up Timer can only be set when the Unit is turned off.

Press the WAKE UP/SLEEP button with the XT-G90RBK off.
The WAKE UP indicator starts blinking on the display .
Each time you press the WAKE UP/SLEEP button while the WAKE UP indicator is blinking, it changes the time shown on the display in the sequence shown below.

→ 0:10 → 0:20 → 0:30 → 1:00 → 1:30 → 2:00 → 3:00
OFF ← 12:00 ← 11: 00 .... 4:00 ←

After selecting the time, wait about 5 seconds, and the XT-G90RBK memorizes your setting.
- The WAKE UP indicator remains lit on the display to let you know that the Wake Up Timer is set.

To check the time remaining until the Unit turns on

Press the WAKE UP/SLEEP button once.
The remaining time is displayed for 5 seconds.

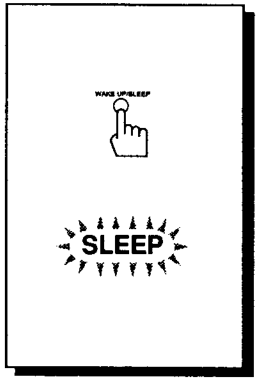
To change the set time

Press the WAKE UP/SLEEP button repeatedly.

To cancel the Wake Up Timer setting

Press the WAKE UP/SLEEP button repeatedly so that the WAKE UP indicator disappears from the display.

Hints for using your Wake Up Timer
- When the set time comes you will hear the most recently used source.
- The volume when the timer turns on the source is the volume last set when the XT-G90RBK was used. This can be quite a surprise first thing in the morning, so you might want to reset it before going to sleep.
- If the CD is the most recently used source, it starts playing from the first track.



Sleep Timer

Using this timer, you can fall asleep to music and know your XT-G90RBK will turn off by itself rather than play all night.
- Sleep timer can be set only when the Unit is turned on.

Press the WAKE UP/ SLEEP button with the XT-G90RBK on and a source playing.
The SLEEP indicator start blinking on the display.
Each time you press the WAKE UP/SLEEP button while the SLEEP indicator is blinking, the shut-off time shown on the display changes as shown below.

→ 0:10 → 0:20 → 0:30 → 1:00
OFF ← 2:00 ← 1:30 ←

The Unit will now turn off after the time you set.

To check the time remaining until the Unit turns off

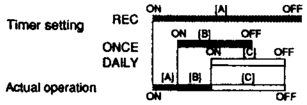
Press the WAKE UP/SLEEP button once.
The remaining time is displayed for 5 seconds.

To cancel the Sleep Timer setting

Press WAKE UP/SLEEP button repeatedly until the SLEEP indicator disappears from the display.

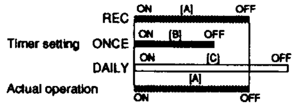
Timer Priority

Setting multiple timers within the same time range will make actual operation complicated.
For instance, while the Recording Timer may be set to record a program from 8:00 AM to 9:00 AM, the Daily Timer may be set to play a CD at 8:30 AM. So will it interrupt the radio recording, or will it just not come on, since Recording Timer is already on?

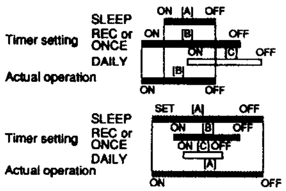

Timer setting
REC
ON
[A]
OFF
ONCE
DAILY
ON [B] OFF
ON [C] OFF
Actual operation
[A] [B] [C]
ON
OFF

A) If the Recording, Once, and Daily Timers are set within the same time range, each timer will come on at the time you have set. If another timer is already on, that timer will be shut off when the second timer starts. So if you are recording a radio broadcast with the Recording Timer and the Once Timer is set to start a different station playing during the recording, you will lose the recording at that point.

* [A], [B], and [C] indicate the different sources.

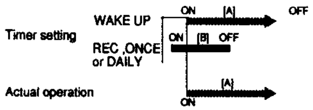

REC
ON [A] OFF
Timer setting
ONCE
ON [B] OFF
DAILY
ON [C] OFF
[A]
Actual operation
ON
OFF

B) If the Recording, Once, and Daily Timers have the same starting time, the timer operation will be executed according to the following priority:
1. Recording Timer
2. Once Timer
3. Daily Timer


SLEEP
ON [A] OFF
Timer setting
REC or ONCE
ON [B] OFF
DAILY
ON [C] OFF
[B]
Actual operation
ON
OFF
SLEEP
SET [A] OFF
Timer setting
REC or ONCE
ON [B] OFF
DAILY
ON [C] OFF
[A]
Actual operation
ON
OFF

C) If the Sleep Timer is set while another timer is operating, the other timer operation will be canceled.
Timer operations will not start and be canceled while the Sleep Timer is operating.

* Since the source cannot be selected for the Sleep Timer, the source is always [B].


WAKE UP
ON [A]
OFF
Timer setting
REC, ONCE or DAILY
ON [B] OFF
Actual operation
[A]
ON

D) The Wake Up Timer operation will have priority over any other timer operation.

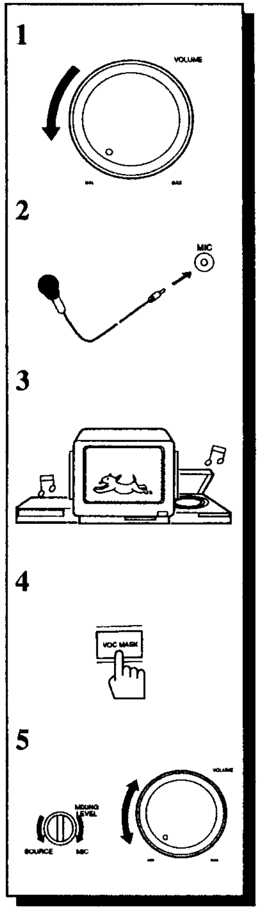
E) If the Sleep Timer and Auto Power Off have been set within the same time range, the timer operation with the earlier shut-off time will have priority.

F) If a timer operation begins during Auto Power Off, the timer operation will have priority.

G) If Auto Power Off is used during a timer operation, Auto Power Off will have priority.

Vocal Masking (Sing Along)

The VOC (Vocal) MASK button lets you use regular tapes, CDs or records as sources of sing-along music. When you press the VOC MASK button, the lead vocal is reduced, and you can replace it by singing into the microphone as the music plays.


1
VOLUME
2
MIC
3
4
VOC MASK
5
MIXING LEVEL
SOURCE
MIC
VOLUME

How to Sing Along with Vocal Masking

1. **Turn down the VOLUME control completely.**

2. **Attach the microphone (not supplied) by plugging it into the MIC jack in the amplifier section.**

3. **Start the source.**
CD, tape, connected VCR, Turntable, etc.

4. **Press the VOC MASK button.**

5. **Now adjust the volume of the source with the VOLUME control, and the volume of your voice with the MIXING LEVEL control as you sing into the microphone.**

Setting the MIXING LEVEL

TOWARD	RESULT
SOURCE	Instrumental music source are emphasized
MIC	Your voice is emphasized

Important information about Vocal Masking
- You can change the tone level by pressing the -DSP LEVEL DELAY TIME+ button on the Remote or by pressing the VOC MASK repeatedly.
- Because the radio signal is not as reliable as signals coming from a tape or CD, you may not always get satisfactory results using the radio as a source for Vocal Masking.
- With this method of Vocal Masking the sound in the middle of the stereo field, which is usually a vocal, is reduced without reducing the instrumental part. However, the voice part is not completely eliminated, only significantly reduced.
- Some tapes and CDs are better sources for singing along than others.
Mono sources are not suitable for Vocal Masking.
- On sources with duets, strong echoes, a chorus, or with only a few instruments, the singer's voice may not be completely reduced.
- Poorly dubbed tapes may not work well for Vocal Masking.

Using the Microphone Only

1. **Attach the microphone.**

2. **Set the MIXING LEVEL to the MIC position.**

3. **Press the CD button from the source selecting buttons.**
If you hear the sound from a CD, press the STOP/CLEAR ■ button.

4. **Adjust the VOLUME control.**

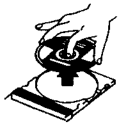
To record from the microphone
You can use the microphone for recording. Sound going into the microphone is mixed with sound sent to the tape in deck B from some other source, such as the CD, or radio.
See the procedure for recording on page 8.
You cannot record your singing-along when the main source is a tape in deck A.

Note
To prevent howling and squealing when using the microphone, adjust the VOLUME control, and try not to point the microphone at the speakers.
When you are not using the microphone, disconnect it.

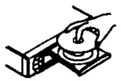
Handling and Maintenance

Compact Discs

Handle your compact discs, cassette tapes, and tape deck carefully, and they will last a long time.

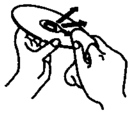


- Remove the CD from the case by holding it at the edges while pressing the center hole lightly.
- Do not touch the shiny surface of the CD, or bend the CD.



- Place the CD into the open tray with the label facing up.

- Put the CD back in its case after use to prevent warping.
- Be careful not to scratch the surface of the CD when placing it back in the case.
- Avoid exposure to direct sunlight, temperature extremes, and moisture.



- A dirty CD may not play correctly. If a CD does become dirty, wipe it with a soft cloth in a straight line from center to edge.

CAUTION: Do not use any solvent (for example, conventional record cleaner, spray, thinner, benzine, etc.) to clean a CD.

Moisture Condensation

Moisture may condense on the lens inside the Unit in the following cases:

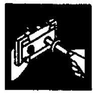
- After starting the heating in the room
- In a damp room
- If the Unit is brought directly from a cold to a warm place.

Should this occur, the Unit may malfunction. In this case, leave the Unit turned on for a few hours until the moisture evaporates, unplug the AC power cord, and then plug it in again.

In general, you will have the best performance by keeping your tapes, CDs, and the mechanism clean.

- Store tapes and CDs in their cases, and keep them in cabinets or on shelves.
- *Keep the tape deck tape carriers and the CD tray closed when not in use.*

Cassette Tapes



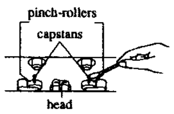
- If the tape is loose in its cassette, take up the slack by inserting a pencil in one of the reels and rotating.
- If the tape is loose it may get stretched, cut, or caught in the cassette.

- Do not touch the tape surface.

- Do not store the tape:
  - -In dusty places
  - -In direct sunlight or heat
  - -In moist areas
  - -On a TV or speaker
  - -Near a magnet

Tape Deck

- If the heads, capstans, and pinch-rollers of the tape deck become dirty, the following will occur:
  - -Impaired sound quality
  - -Discontinuous sound
  - -Fading
  - -Incomplete erasure
  - -Difficulty recording
- Clean the heads, capstans, and pinch-rollers using a cotton swab moistened with alcohol.



- If the heads become magnetized, they will produce noise or loose high frequencies.
- To demagnetize the heads, turn off the system, and use a head demagnetizer (available at electronics and record shops).

Troubleshooting

- If you are having a problem with your XT-G90RBK, check this list for a possible solution before calling for service.
- If you cannot solve the problem from the hints given here, or the Unit has been physically damaged, call a qualified person, such as your dealer, for service.

Symptom	Possible Cause	ACTION
No sound is heard.	Connections are incorrect, or loose.	Check all connections and make corrections. (See pages 4 – 6.)
Impossible to record.	Cassette record protect tabs are removed.	Cover holes on back edge of cassette with tape.
Hard to listen to broadcasts because of noise.	The antenna is disconnected. The loop antenna is too close to the system. The feeder/wire antenna is not properly extended and positioned.	Re-connect the antenna securely. Change the position and direction of the loop antenna. Extend feeder/wire antenna at the best reception position.
The CD sound is discontinuous.	The CD is scratched or dirty.	Clean or replace the CD.
Unable to operate the Remote.	The path between the Remote and the sensor on the Unit is blocked. The batteries are discharged.	Remove the obstruction. Replace the batteries.
The CD tray cannot be operated.	The main AC power cord is not plugged in.	Plug in the AC power plug.
The CD does not play.	The CD is upside down.	Put the CD in with the label side up.
Operations are disabled.	The built in microprocessor may malfunction due to external electrical interference.	Unplug the system then plug it back in.
The cassette holder cannot be opened.	The system was turned off because the timer was operated while the tape was running.	Turn on the system.

Specifications

Amplifier	
Output Power (IEC 263-3/DIN)	
FRONT SPEAKERS A	18 watts per channel into 6 ohms at 80 Hz with 0.9% total harmonic distortion.
FRONT SPEAKERS B/C	13.5 watts per channel, min. RMS, both channels driven into 8 ohms at 1 kHz (DIN)
Total Harmonic Distortion at Half-Rated Power	0.05%
Audio Input Sensitivity/Impedance (1 kHz)	
PHONO	3.0 mV/50 kohms
VIDEO	300 mV/50 kohms
VCR/DCC/MD	300 mV/50 kohms
AUX	300 mV/50 kohms
Audio Output Load/Impedance	
VCR/DCC/MD	200 mV/2.5 kohms
Video Input	
VIDEO	1 Vp-p/75 ohms
VCR	1 Vp-p/75 ohms
Video Output	
MONITOR	1Vp-p/75 ohms
VCR	1Vp-p/75 ohms
Tuner	
FM	
Tuning Range	87.5 – 108.0 MHz
Usable Sensitivity	0.95 µV/75 ohms (10.8 dBf)
Signal-to-Noise Ratio (IHF-A weighted/DIN)	MONO (at 85 dBf) 80 dB STEREO (at 85 dBf) 73 dB/64 dB
AM (MW/LW)	
Tuning Range	MW: 522 – 1,629 kHz LW: 144 – 288 kHz
Dimensions (WxHxD)	275 x 125 x 299 mm (10 - 7/8 x 4 - 15/16 x 11 - 13/16 in.)
Weight	5.3 kg (14.8lbs)
Tape deck	
Frequency response	
Normal:	30 – 15,000 Hz
CrO_2:	30 – 16,000 Hz
Metal:	30 – 17,000 Hz
Wow and Flutter (WRMS/DIN)	0.09%/0.2%
Dimensions (WxHxD)	275 x 125 x 270 mm (10 - 7/8 x 4 - 15/16 x 10 -11/16 in.)
Weight	2.9 kg (6.5 lbs)
Compact Disc Player	
Dynamic Range (1 kHz)	90 dB
Signal-to-Noise Ratio	100 dB
Wow and Flutter	Unmeasurable
Dimensions (WxHxD)	275 x 90 x 275 mm (10 - 7/8 x 3 - 9/16 x 10 - 7/8 in.) (Maximum depth 415 mm (16-2/8 in.) with the CD tray open)
Weight	2.2 kg (4.8 lbs)
Graphic Equalizer	
SEA Center frequencies	63 Hz, 160 Hz, 400 Hz, 1 kHz, 2.5 kHz 6.3 kHz, 16 kHz
SEA Control Range	±12dB ±1dB
Dimensions (WxHxD)	275 x 90 x 267 mm (10 - 7/8 x 3 - 9/16 x 10 - 9/16 in.)
Weight	1.6 kg (3.6 lbs)
Power Specifications	
Line Voltage & Frequency	AC230V∿50 Hz
Power Consumption	195 watts

Supplied Accessories
- FM feeder antenna (except for Germany) (1)
- FM wire antenna (only for Germany) (1)
- AM (MW/LW) loop antenna (1)
- Remote control (RM-SEG90U) (1)
- Batteries R03(UM-4)/AAA(24F) (2)
- Antenna adaptor (except for Germany) (1)
- Wire (1)
- Speaker control cords (2)

Panoramic Shifting Speakers SP-G90BK	
Type	3-way 4 speakers bass reflex type
Speakers	
Mid/High range Tweeter:	3.0 cm (1-3/16 in.) dome x 1
Full range:	9.0 cm (3-9/16 in.) cone x 1
Full range Motor driven:	9.0 cm (3-9/16 in.) cone x 1
Low range Super woofer:	16.5 cm (6-1/2 in.) cone x 1
Sound pressure level	
Mid/High range	86 dB/w.m
Full range	86 dB/w.m
Low range	86 dB/w.m
Power handling capacity	
Mid/High range	25 watts
Full range	25 watts
Low range	30 watts
Frequency Range	
Mid/High range	120 Hz–20,000 Hz
Full range	120 Hz–20,000 Hz
Low range	38 Hz–8,000 Hz
Impedance	
Mid/High range	8 ohms
Full range	8 ohms
Low range	6 ohms
Dimensions (WxHxD)	230 x 426 x 283 mm (9 - 1/16 x 16 - 3/16 x 11 - 3/16 in.)
Weight	7.5 kg (16.6lbs) each
Supplied Accessory	Speaker cords (2)

(Design and specifications subject to change without notice.)

Technical Explanation

1. Outline

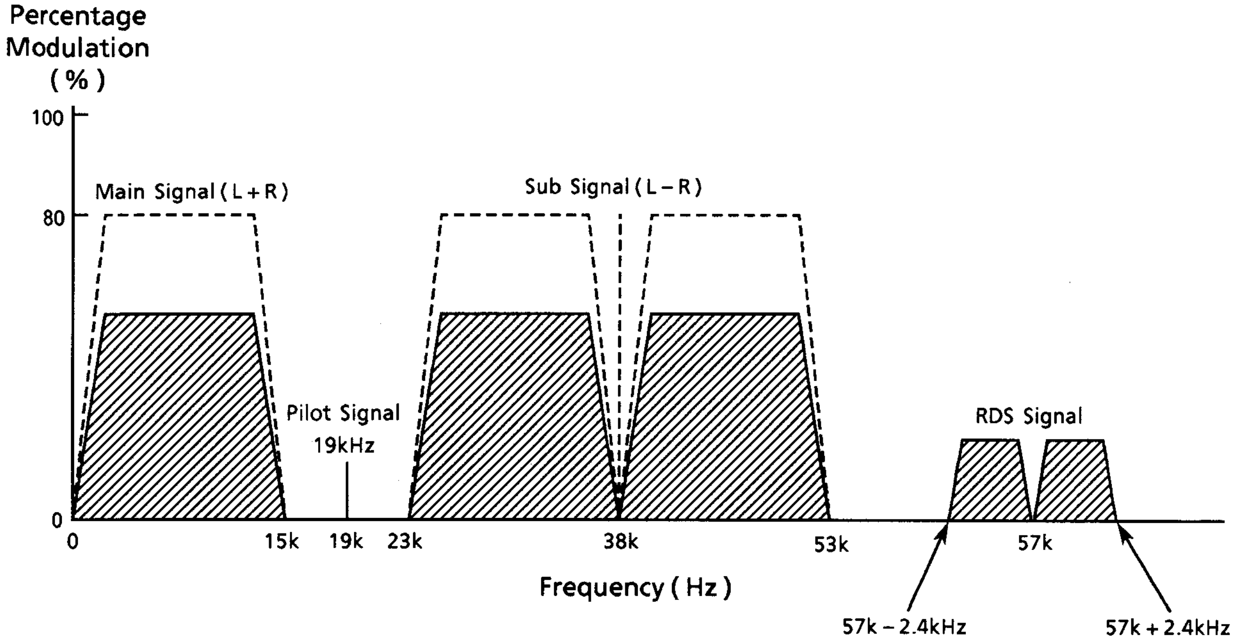
RDS (Radio Data System) means the system to transmit control signal such as frequency information for tuning, traffic information and so on.
RDS signal which is DSB modulated at sub carrier frequency of 57kHz is FM modulated into main carrier signal.

Table-1 shows the details for RDS signal.

Figure 1 shows the frequency spectrum at RDS signal and stereo modulated (composite) signal.

[Table-1] RDS signal's Specification

	Item	Specification
Modulation Form	Sub Carrier Frequency	57kHz
	Sub Carrier Modulation Form	Duble Sideband Carrier Suppression Amplitude Modulation
	Frequency Deviation	RDS only : ±2kHz TRI: ±1.2kHz
	Data Modulation Form	Two Phase PSK (Phase Shift Keying)
	Data Coding Form	Differential Coding
	Occupied Bandwidth	57kHz ± 2.4kHz(√100%cosine roll off Characteristic
Data Form	Bit late	1,187.5bit/s
	Error correcting	(26,16) Reduction Cyclic Code
	1 Block	26bit
	1 Group	104bit (4 block)
	Synchronism Form	Offset ward



[Fig. 1] Frequency Spectrum at RDS signal & Stereo modulated Signal

—— MEMO ——

RX-G90RBK

– Contents–

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Block Diagram 2-12

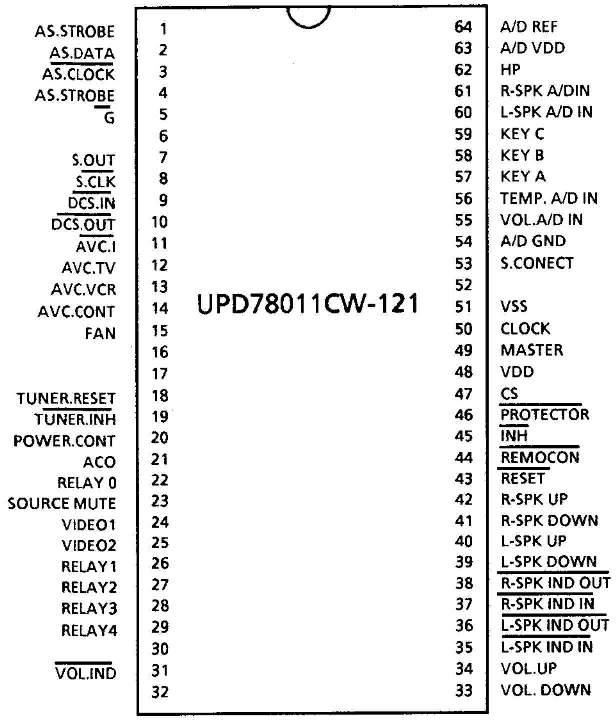
Schematic Diagrams 2-15

Printed Circuit Boards 2-18

Description of ICs

■ UPD78011CW-121 (IC701) : System controller

1. Terminal Layout


UPD78011CW-121
1 AS.STROBE
2 AS.DATA
3 AS.CLOCK
4 AS.STROBE
5 G
6
7 S.OUT
8 S.CLK
9 DCS.IN
10 DCS.OUT
11 AVC.I
12 AVC.TV
13 AVC.VCR
14 AVC.CONT
15 FAN
16
17
18 TUNER.RESET
19 TUNER.INH
20 POWER.CONT
21 ACO
22 RELAY 0
23 SOURCE MUTE
24 VIDEO1
25 VIDEO2
26 RELAY1
27 RELAY2
28 RELAY3
29 RELAY4
30
31 VOL.IND
32
64 A/D REF
63 A/D VDD
62 HP
61 R-SPK A/DIN
60 L-SPK A/D IN
59 KEY C
58 KEY B
57 KEY A
56 TEMP. A/D IN
55 VOL.A/D IN
54 A/D GND
53 S.CONECT
52
51 VSS
50 CLOCK
49 MASTER
48 VDD
47 CS
46 PROTECTOR
45 INH
44 REMOCON
43 RESET
42 R-SPK UP
41 R-SPK DOWN
40 L-SPK UP
39 L-SPK DOWN
38 R-SPK IND OUT
37 R-SPK IND IN
36 L-SPK IND OUT
35 L-SPK IND IN
34 VOL.UP
33 VOL. DOWN

2. Key input (KEY A~C)

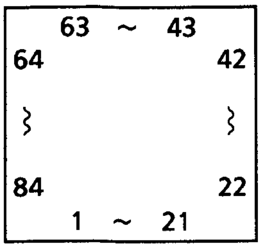
KEY A	KEY B	KEY C
AUTO LOUDNESS	SOURCE DIRECT	TUNER ENTRY
VIDEO	VCR	AUTO POWER OFF
CD/CDG	PHONO	–
AUX	TUNER	–
TAPE	POWER	–

3. Pin Functions

Pin No.	Symbol	I/O	Functions
1	AS STROBE	O	Strobe for data transmission to IC201 and IC203
2	AS DATA	O	Switch data to IC201 and IC203
3	AS CLOCK	O	Clock for data transmission
4	AS. STROBE	O	Strobe for IC902 and IC903
5	G	O	Enable for IC902 and IC903
6,16, 17,32		--	Connected to GND
7	S. OUT	O	Data for IC902 and IC903
8	S.CLK	O	Data latch clock for IC902 and IC903
9,10	DCS IN/OUT	I/O	Compulink signal
11~14	AVC.I/TV/ VCR/CONT	--	Non connection
15	FAN	O	Fan control signal
18	T.RESET	O	Tuner reset signal
19	T.INH	O	Tuner inhibit signal
20	P.CONT	O	Power on : H (Cassette deck , DSP control)
21	ACO	O	Regulator control (Power on : H)
22	RELAY 0	O	Relay control signal for main speaker
23	SOURCE MUTE	O	Mute (Power on/off , Changing source)
24,25	VIDEO1,2	O	Video selector control
26~29	PLAY1~4	O	Speaker matrix control
30	SPK POWER	O	Power control for panorama speaker
31	VOL IND	O	Indication control
33,34	VOL. DOWN/UP	O	Volume control signal
35~38	L(R)-SPK IND IN/OUT	I/O	Indication of left (right) panorama speaker
39~42	L(R)-SPK DOWN/UP	O	Panorama speaker control
43	RESET	I	Reset signal
44	REMOCON	I	Remote control signal input
45	INH	I	Inhibit signal input
46	PROTECTOR	I	Input from protector
47	CS	I	Chip select
48 63	VDD A/D VDD	--	Power supply
49,50	M. CLOCK	--	Oscillation terminal
51 54	VSS A/D GND	--	GND
52		--	Non connection
53	S.CONNECT	--	Connected to +5V
55	VOL A/D IN	I	Observing the position of master volume
56	TEMP A/D IN	I	Sensing temperature
57~59	KEY A~C	I	Key input
60,61	R(L)-SPK A/D IN	I	Observing the position of the right (left) speaker
62	HP	I	Observing the connect of the headphone
64	A/D REF	I	Reference voltage for inner A/D converter

■ MN172412JYL (IC901) : Tuner controller

1.Terminal Layout


63 ~ 43
64
42
84
22
1 ~ 21

2.Key Matrix

	KEY IN 0 (PIN56)	KEY IN 1 (PIN57)	KEY IN2 (PIN58)	KEY IN3 (PIN59)
KEY OUT 0 (PIN60)	WAKE-UP / SLEEP	ONCE TIMER	DAILY TIMER	REC TIMER
KEY OUT 1 (PIN61)	DISPLAY MODE	CLOCK ADJ	CANCEL	MEMORY
KEY OUT 2 (PIN63)	UP	DOWN	PRESET UP	PRESET DOWN
KEY OUT 3 (PIN64)	—	—	—	—
KEY OUT 6 (PIN66)	PTY. TP SEARCH CHARCTERSET	FM MODE	FM	AM
KEY OUT 7 (PIN67)	BAND0	BAND1	LW 9K/10K	LW2 12/24H

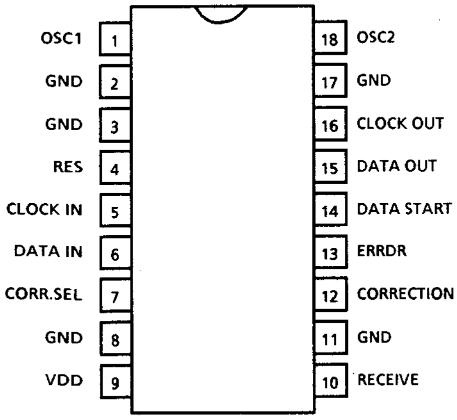
3.Pin Functions

Pin NO.	Symbol	I/O	Function
1,2	G2~G1	O	Grid control signal
3	NC	--	Non connection
4~22	35S~17S	O	Segment control signal
23	– BP	--	Power supply for FL display
24~39	16S~1S	O	Segment control signal
40	CE	O	Chip enable signal output
41	CLK	O	Clock for data transmission
42	DATA IN	I	Data from PLL synthesizer
43	DATA OUT	O	Data for PLL synthesizer
44	fout	O	Frequency for the clock
45	RCK	I	Clock for RDS
46	RDATA	I	Data for RDS
47	R-RST	O	Reset for RDS
48	INH	I	Inhibit signal input
49	D-ST	I	RDS data start
50	TUNED	I	Indication control signal
51	STEREO	I	Indication control signal

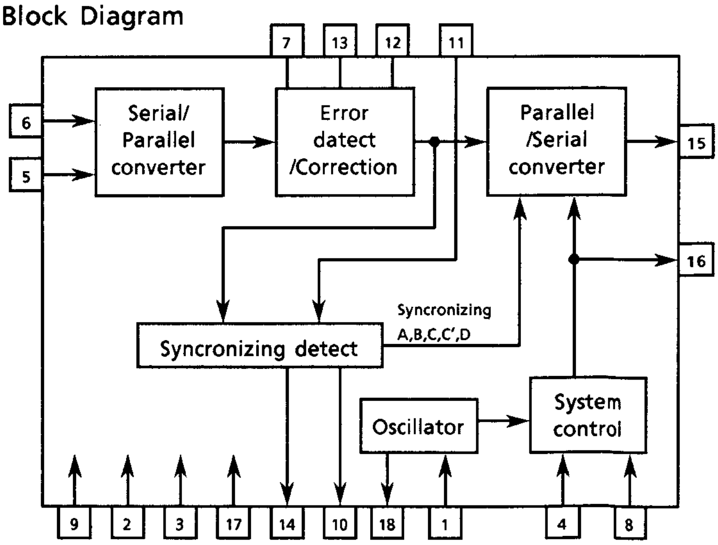
Pin NO.	Symbol	I/O	Function
52	MUTE	--	Non connection
53	NC	--	Non connection
54,55	DCS OUT/IN	I/O	Compulink signal
56~59	KIN0~KIN3	I	Key matrix input
60~67	KOUT0 ~KOUT7	O	Key matrix output
68	RST	I	Reset signal input
69	X1	--	Connected to GND
70	X2	--	Non connection
71	VSS	--	GND
72,73	OSC2/OSC1	--	Oscillation terminal
74	VDD	--	Power supply
75	S60R/G70R	--	Connected to GND
76	TEST	I	Test mode terminal
77	G10(NC)	--	Non connection
78~84	G3~G9	O	Grid control signal

■ LC7073M (IC191) : Radio Data System

1. Terminal Layout


OSC1 1
GND 2
GND 3
RES 4
CLOCK IN 5
DATA IN 6
CORR.SEL 7
GND 8
VDD 9
18 OSC2
17 GND
16 CLOCK OUT
15 DATA OUT
14 DATA START
13 ERRDR
12 CORRECTION
11 GND
10 RECEIVE

2. Block Diagram


7
13
12
11
6
5
Serial/ Parallel converter
Error datect /Correction
Parallel /Serial converter
15
16
Syncronizing A,B,C,C',D
Syncronizing detect
Oscillator
System control
9
2
3
17
14
10
18
1
4
8

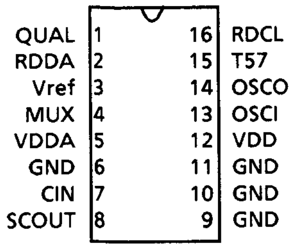
3. Pin Functions

Pin No.	Symbol	I/O	Function
1,18	OSC1,OSC2	I/O	Oscillation terminal
2,3,8, 11,17	GND	—	GND
4	RES	I	Reset input
5	CLOCK IN	I	RDS clock input
6	DATA IN	I	RDS data input
7	CORR.SEL	I	Non connection
9	VDD	—	Power supply

Pin No.	Symbol	I/O	Function
10	RECEIVE	—	Non connection
12	CORRECTION	—	Non connection
13	ERRDR	—	Non connection
14	DATA START	O	Data start signal for block data to output serial data.
15	DATA OUT	O	Serial data output
16	CLOCK OUT	O	Data output of serial data output

■ SAA6579T (IC192) : Radio data system demodulator

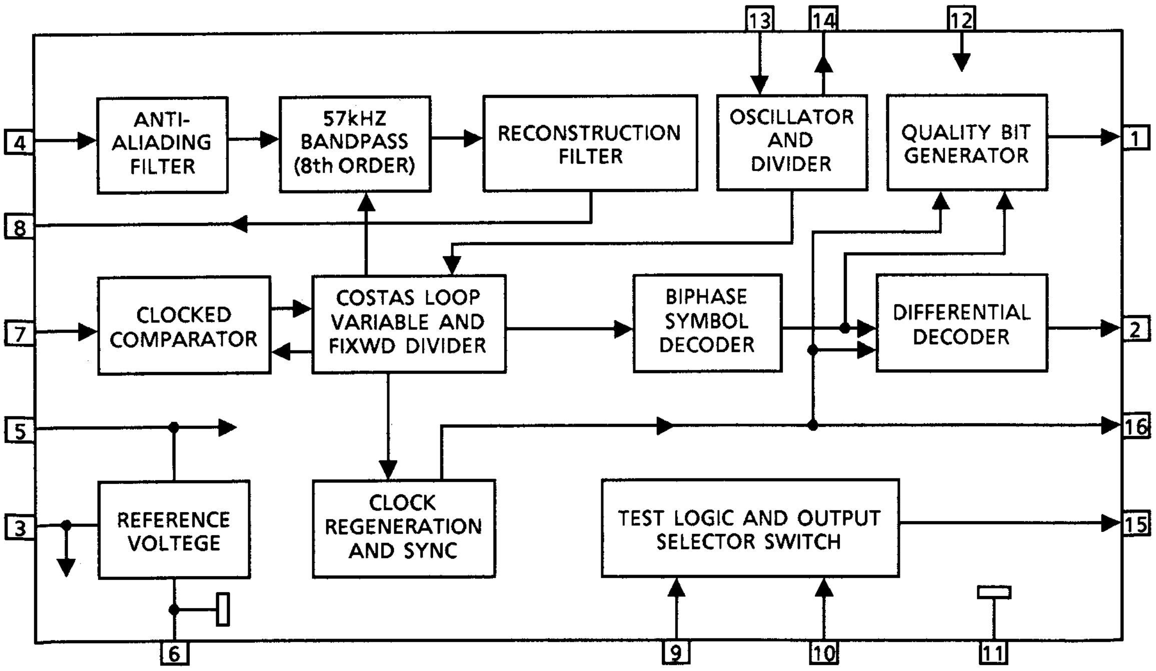
1. Terminal Layout


QUAL 1
RDDA 2
Vref 3
MUX 4
VDDA 5
GND 6
CIN 7
SCOUT 8
9 GND
10 GND
11 GND
12 VDD
13 OSCI
14 OSCO
15 T57
16 RDCL

2. Pin Function

Pin No.	Symbol	I/O	Function
1	QUAL	–	Non connection
2	RDDA	O	RDS data output
3	Vref	O	Reference voltage output
4	MUX	I	Multiplex signal input
5	VDDA	–	+5V supply voltage for analog part
6	GND	–	Ground for analog part (0V)
7	CIN	I	Subcarrier input to comparator
8	SCOUT	O	Subcarrier output of reconstruction filter
9	GND	–	Ground for digital part (0V)
10	GND	–	Ground for digital part (0V)
11	GND	–	Ground for digital part (0V)
12	VDD	–	+5V supply voltage for digital part
13	OSCI	I	Oscillator input
14	OSCO	O	Oscillator output
15	T57	–	Non connection
16	RDCL	O	RDS clock output

3. Block Diagram


13
14
12
4
ANTI-ALIADING FILTER
57kHZ BANDPASS (8th ORDER)
RECONSTRUCTION FILTER
OSCILLATOR AND DIVIDER
QUALITY BIT GENERATOR
1
8
7
CLOCKED COMPARATOR
COSTAS LOOP VARIABLE AND FIXWD DIVIDER
BIPHASE SYMBOL DECODER
DIFFERENTIAL DECODER
2
5
16
3
REFERENCE VOLTEGE
CLOCK REGENERATION AND SYNC
TEST LOGIC AND OUTPUT SELECTOR SWITCH
15
6
9
10
11

■ LC7218 (IC121) : PLL Synthesizer

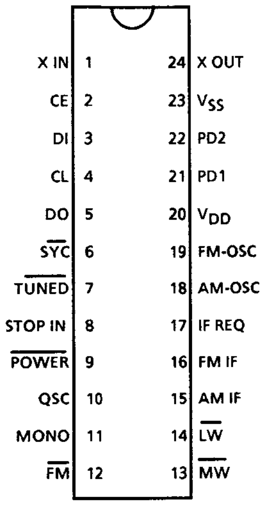
1. The main function descriptions

(1) It makes the local oscillation frequency by the control data from IC201.

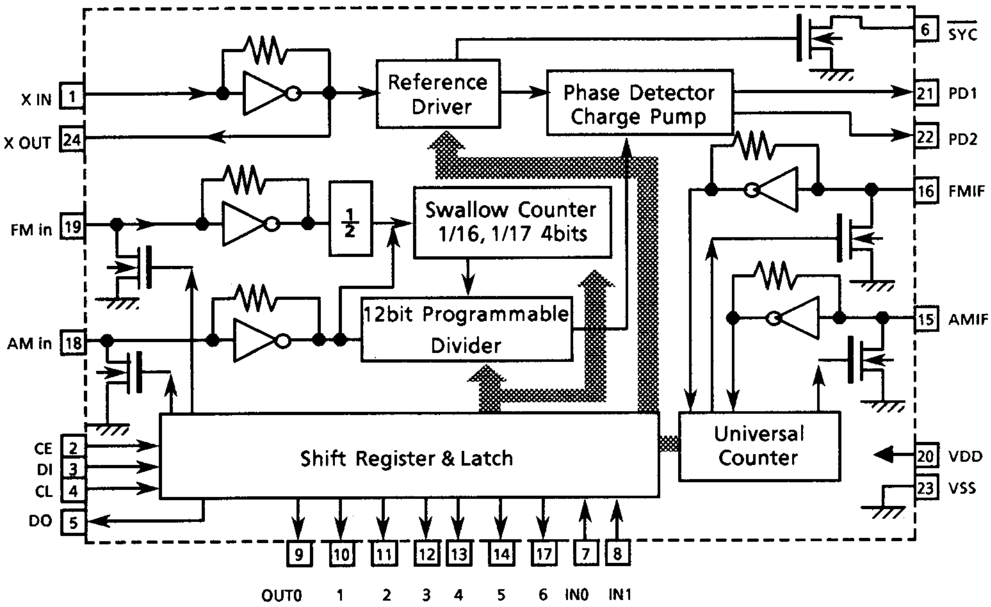
(2) Decode the control signal and transmit the signal for receiving conditions.

(3) For the best tuning, count the internal-frequency and transmit the data to IC201.

2. Terminal Layout


X IN 1
CE 2
DI 3
CL 4
DO 5
SYC 6
TUNED 7
STOP IN 8
POWER 9
QSC 10
MONO 11
FM 12
24 X OUT
23 V_{SS}
22 PD2
21 PD1
20 V_{DD}
19 FM-OSC
18 AM-OSC
17 IF REQ
16 FM IF
15 AM IF
14 LW
13 MW

3. Block Diagram

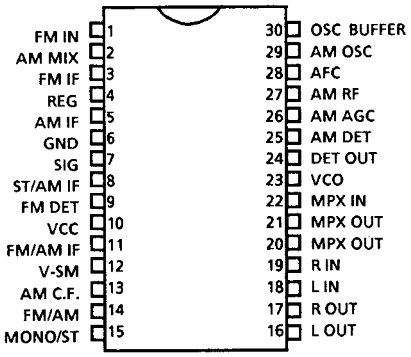

X IN 1
X OUT 24
FM in 19
AM in 18
CE 2
DI 3
CL 4
DO 5
Reference Driver
Phase Detector Charge Pump
1/2
Swallow Counter 1/16, 1/17 4bits
12bit Programmable Divider
Shift Register & Latch
Universal Counter
6 SYC
21 PD1
22 PD2
16 FMIF
15 AMIF
20 VDD
23 VSS
9 10 11 12 13 14 17 7 8
OUT0 1 2 3 4 5 6 IN0 IN1

4. Pin Functions

Pin No.	Symbol	I/O	Functions
1,24	X in , X out	I/O	Crystal oscillator (7.2MHz).
2	CE	I	Fix the chip enable to "H" when inputting (DI) and outputting (DO) the serial data.
3	DI	I	Receive the control data from the controller (IC201).
4	CL	I	This clock is used to synchronize data when transmitting the data of DI and DO.
5	DO	O	Transmit the data from LC7218 to the controller which is synchronized with CL.
6	SYC	—	Not used.
7	TUNED	I	Receive the tuned signal from IC102 (LA1836).
8	STOP IN	—	Connected to GND
9	POWER	—	Not used.
10	QSC	—	Not used.
11	MONO	O	It is "H" on FM-monaural, "L" on FM-Stereo.
12	FM	O	It is "L" on FM mode.
13	MW	O	It is "L" on MW mode.
14	LW	O	It is "L" on LW mode.
15	AM-IF	I	Universal counter input for AM-IF from IC102 (LA1836).
16	FM-IF	I	Universal counter input for FM-IF from IC102(LA1836).
17	IF REQ	O	Output the "IF-signal request" to IC102 when the pin-7 (tuned in) goes to "H".
18	AM OSC	I	Input the local oscillator signal of AM.
19	FM OSC	I	Input the local oscillator signal of FM.
20	V_{DD}	—	This is a terminal of power supply.
21	PD1	O	PLL charge pump output: When the local oscillator signal frequency is higher than the reference frequency high level signals will output. When it is lower than the reference frequency, low level signals will output. When it is same as reference frequency signals, it will be floating.
22	PD2	—	Not used.
23	Vss	—	Connected to GND

■ LA1836M (IC102) : FM AM IF AMP & detector

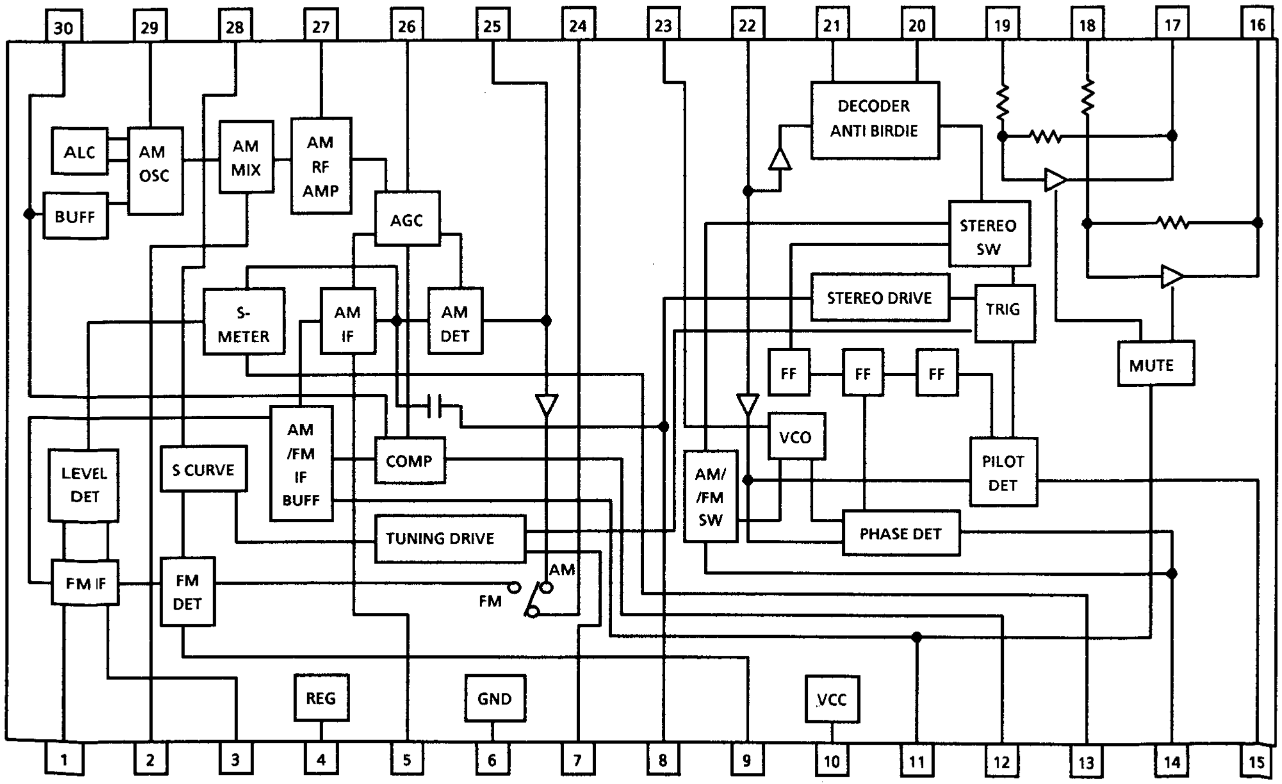
1. Terminal Layout


FM IN 1
AM MIX 2
FM IF 3
REG 4
AM IF 5
GND 6
SIG 7
ST/AM IF 8
FM DET 9
VCC 10
FM/AM IF 11
V-SM 12
AM C.F. 13
FM/AM 14
MONO/ST 15
30 OSC BUFFER
29 AM OSC
28 AFC
27 AM RF
26 AM AGC
25 AM DET
24 DET OUT
23 VCO
22 MPX IN
21 MPX OUT
20 MPX OUT
19 R IN
18 L IN
17 R OUT
16 L OUT

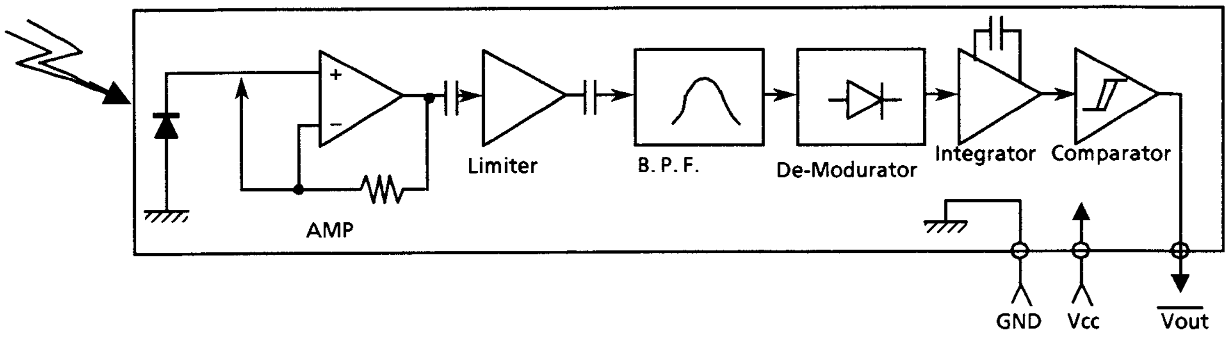
3. Pin Function

Pin No.	Symbol	I/O	Function
1	FM IN	I	This is an input terminal of FM IF Signal.
2	AM MIX	O	This is an output terminal for AM mixer.
3	FM IF	I	Bypass of FM IF
4	REG	—	Register value between pin4 and pin28 desides the frequency width of the input signal.
5	AM IF	I	Input of AM IF Signal.
6	GND	—	This is the device ground terminal.
7	SIG	O	When the set is tunning, this terminal becomes "L".
8	ST/AM IF	O	Stereo indicator output. Stereo : "L", Mono : "H"
9	FM DET	—	FM detect transformer.
10	VCC	—	This is the power supply terminal.
11	FM/AM IF	O	When the signal of IF REQ of IC121(LC7218) appear, the signal of FM/AM IF output.
12	VSM	O	S Meter output and adjust AM SD sensitivity.
13	AM C.F.	I	This is a terminal of AM ceramic filter.
14	FM/AM	I	Change over the FM/AM input. "H" : FM, "L" : AM
15	MONO/ST	O	Stereo : "H", Mono : "L"
16	L OUT	O	Left channel signal output.
17	R OUT	O	Right channel signal output
18	L IN	I	Input terminal of the Left channel post AMP.
19	R IN	I	Input terminal of the Right channel post AMP.
20	MPX L OUT	O	Mpx Left channel signal output.
21	MPX R OUT	O	Mpx Right channel signal output.
22	MPX IN	I	Mpx input terminal.
23	VCO	I	Voltage controlled oscillator terminal.
24	DET OUT	O	AM/FM detection output.
25	AM DET	—	AM low cut adjustment.
26	AM AGC	I	This is an AGC voltage input terminal for AM.
27	AM RF	I	This is an input terminal for AM RF signal.
28	AFC	—	This is an output terminal of voltage for FM-AFC.
29	AM OSC	—	This is a terminal of AM Local oscillation circuit.
30	OSC BUFFER	O	AM Local oscillation Signal output.

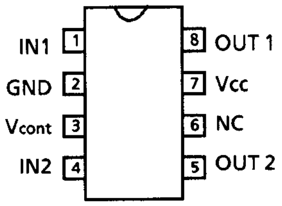
2. Block Diagram


30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
ALC
AM OSC
BUFF
AM MIX
AM RF AMP
AGC
S-METER
AM IF
AM DET
DECODER ANTI BIRDIE
STEREO SW
STEREO DRIVE
TRIG
MUTE
FF
FF
FF
VCO
PILOT DET
PHASE DET
AM/ /FM SW
AM /FM IF BUFF
COMP
LEVEL DET
S CURVE
TUNING DRIVE
FM IF
FM DET
AM
FM
REG
GND
VCC
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

■ GP1V901X (IC904) : Receiver for Remote Controller


+
−
AMP
Limiter
B. P. F.
De-Modurator
Integrator
Comparator
GND
Vcc
$\overline{\text{Vout}}$

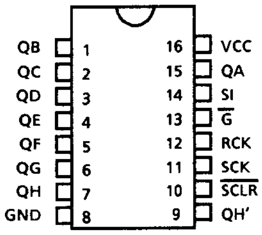
■ LB1639-CV (IC702, 703, 704) : Motor Driver


IN1 1
GND 2
Vcont 3
IN2 4
8 OUT 1
7 Vcc
6 NC
5 OUT 2

IN 1	IN 2	OUT 1	OUT 2	MOTOR
H	L	H	L	CLOCKWISE
L	H	L	H	COUNTER-CLOCKWISE
H	H	OFF	OFF	WAITING
L	L	OFF	OFF	WAITING

■ TC74HC595AP(IC902,903) : 8-Bit Shift Register

1. Terminal Layout

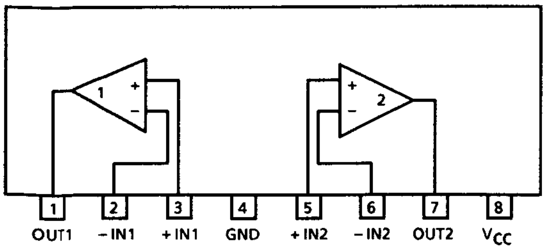

QB 1
QC 2
QD 3
QE 4
QF 5
QG 6
QH 7
GND 8
16 VCC
15 QA
14 SI
13 $\overline{G}$
12 RCK
11 SCK
10 $\overline{SCLR}$
9 QH'

2. Function Table

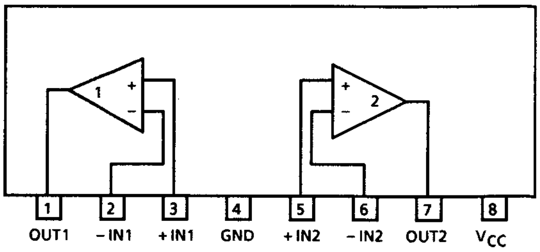
Inputs					Functions
SI	SCK	$\overline{SCLR}$	RCK	$\overline{G}$	
X	X	X	X	H	Output (QA-QH) disable.
X	X	X	X	L	Output (QA-QH) enable.
X	X	L	X	X	Shift register is cleared.
L	↑	H	X	X	Condition of shift register in initial stage is "L". In the other stages, data from the former stage is stored.
H	↑	H	X	X	Condition of shift register in initial stage is "H". In the other stages, data from the former stage is stored.
X	↓	H	X	X	Shift register does not change.
X	X	X	↑	X	Shift register data is stored in the storage register.
X	X	X	↓	X	Storage register does not change.

X : Don't care

■ BA15218N (IC204) : Dual OP Amp


1
+
−
2
+
−
1 OUT1
2 −IN1
3 +IN1
4 GND
5 +IN2
6 −IN2
7 OUT2
8 V_{CC}

■ VC4580LD (IC611,202) : Dual OP Amp

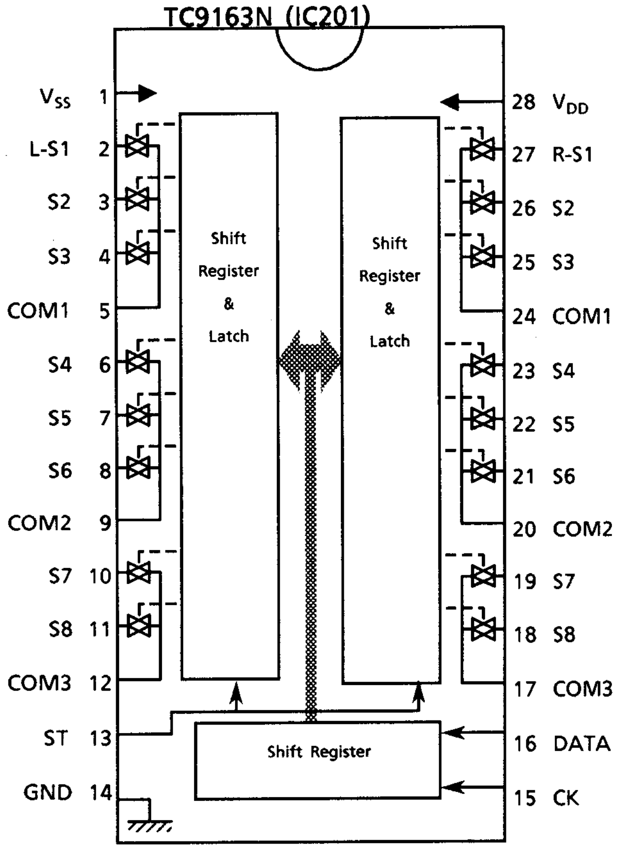

1
+
−
2
+
−
1 OUT1
2 −IN1
3 +IN1
4 GND
5 +IN2
6 −IN2
7 OUT2
8 V_{CC}

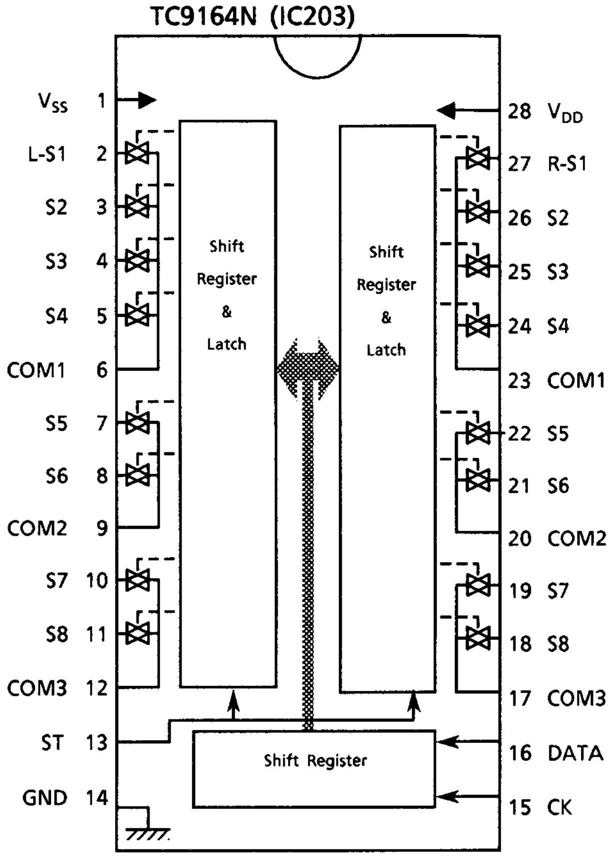
■TC9163N, TC9164N : Analog Switch

1.Functions

These analog switches are controlled by 14 bit serial date from computer for selecting the source.

2.Terminal Layout & Block diagram


TC9163N (IC201)
Vss 1
L-S1 2
S2 3
S3 4
COM1 5
S4 6
S5 7
S6 8
COM2 9
S7 10
S8 11
COM3 12
ST 13
GND 14
28 VDD
27 R-S1
26 S2
25 S3
24 COM1
23 S4
22 S5
21 S6
20 COM2
19 S7
18 S8
17 COM3
16 DATA
15 CK
Shift Register & Latch
Shift Register & Latch
Shift Register


TC9164N (IC203)
Vss 1
L-S1 2
S2 3
S3 4
S4 5
COM1 6
S5 7
S6 8
COM2 9
S7 10
S8 11
COM3 12
ST 13
GND 14
28 VDD
27 R-S1
26 S2
25 S3
24 S4
23 COM1
22 S5
21 S6
20 COM2
19 S7
18 S8
17 COM3
16 DATA
15 CK
Shift Register & Latch
Shift Register & Latch
Shift Register

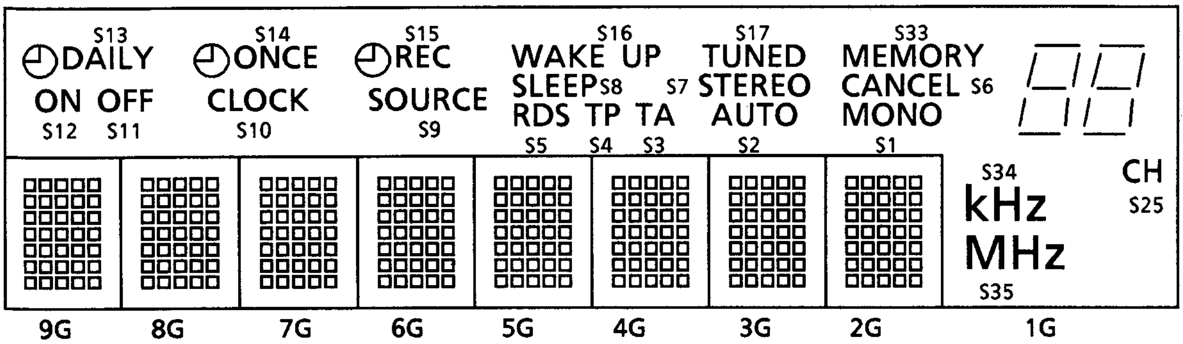
3. First 10bits are used to source select. Last 4bits are chip select. The switches (S1~S8) are connected to common terminals (COM1~COM3) according to the DATA from computer.

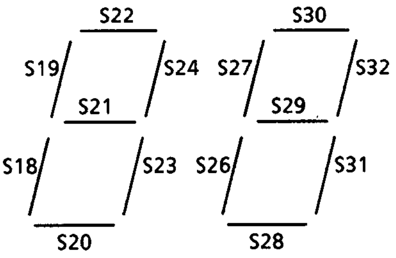
	Chip Select Bit S11	S12	S13	S14
TC9163N	1	0	0	0
TC9164N	0	1	0	0

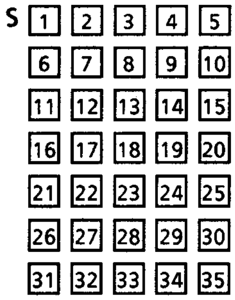
Internal Connections of FL Display

■ ELU0001-174:(FL901)

1. Grid Layout


S13
DAILY
ON OFF
S12 S11
S14
ONCE
CLOCK
S10
S15
REC
SOURCE
S9
S16
WAKE UP
SLEEP S8
RDS TP TA
S5 S4 S3
S17
TUNED
S7 STEREO
AUTO
S2
S33
MEMORY
CANCEL S6
MONO
S1
S34
kHz
MHz
S35
CH
S25
9G
8G
7G
6G
5G
4G
3G
2G
1G


S22
S19
S24
S21
S18
S23
S20
S30
S27
S32
S29
S26
S31
S28


S
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
21 22 23 24 25
26 27 28 29 30
31 32 33 34 35

2. Pin Connection

LOWER

TERMINAL NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ELECTRODE	F1	F1	F1	NP	P S1	P S2	P S3	P S4	P S5	P S6	P S7	P S8	P S9	P S10	P S11	P S12
TERMINAL NO.		17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ELECTRODE		P S13	P S14	P S15	P S16	NP	P S17	P S18	P S19	P S20	P S21	P S22	NP	F2	F2	F2

UPPER

TERMINAL NO.	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
ELECTRODE	F2	F2	F2	NP	P S23	P S24	P S25	P S26	P S27	P S28	P S29	P S30	P S31	P S32	P S33	P S34
TERMINAL NO.		48	49	50	51	52	53	54	55	56	57	58	59	60	61	62
ELECTRODE		P S35	1G	2G	3G	4G	5G	6G	7G	8G	9G	NP	NP	F1	F1	F1

Notes F : Filament G : Grid P : Anode NP : No PIN

Disassembly Procedures

- Removing the metal cover

1. Remove the 2 screws Ⓐ fastening the both sides of the cover and 4 screws Ⓑ fixing the back of the cover to remove the cover.

- Removing the front panel assembly

1. Remove the metal cover.
2. Remove the master volume knob to remove the nut fixing the volume. Disconnect the connector of the volume indicator at the same time.
3. Disconnect the connectors JB901, J202, J101, J203, J204, JB901 and J205.
4. Remove the screw Ⓒ and release the 3 hooks to remove the assembly.

- Removing the rear panel

1. Remove the 16 screws Ⓓ.
2. Disconnect the connector J703.
3. Release the 2 hooks to remove the rear panel.

※ When installing the rear panel, arrange the wire from the fan so that the wire does not disturb the fan operation (Figure 2).

- Removing the main circuit board

1. Remove the front panel assembly.
2. Disconnect the connectors JB801 and J802.
3. Remove the rear panel.
4. Remove the 7 screws fixing the main circuit board to remove the circuit board.(If neccesary, remove the circuit boards on the main circuit board.)

- Removing the front circuit board

1. Remove the front panel assembly.
2. Remove the balance and twin bass knobs.
3. Remove the 9 screws Ⓕ,Ⓖ fixing the front circuit board to remove the circuit board.

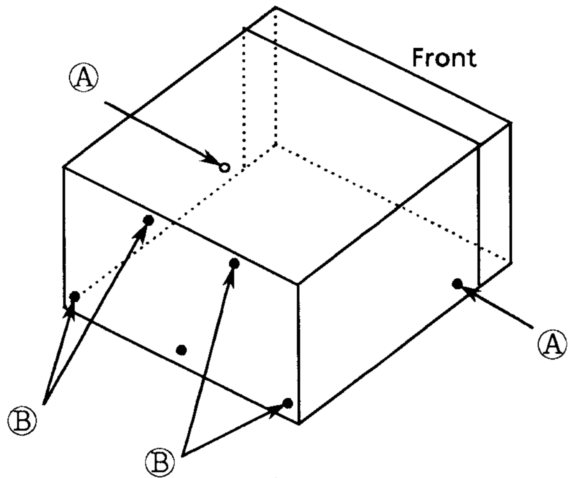


Figure 1

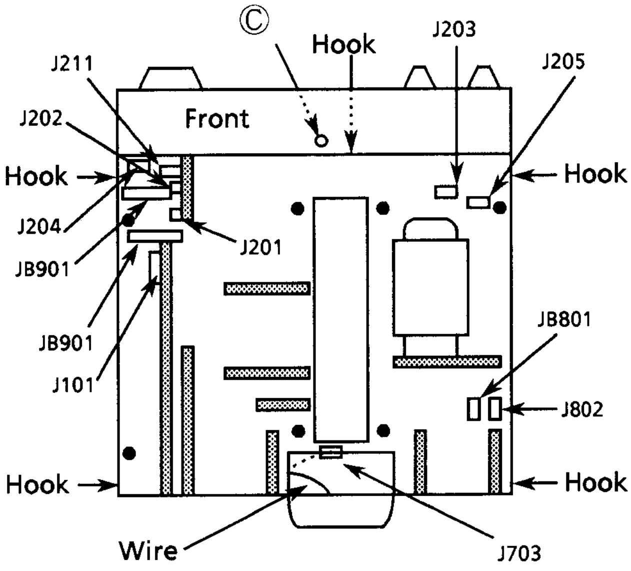


Figure 2 Top view

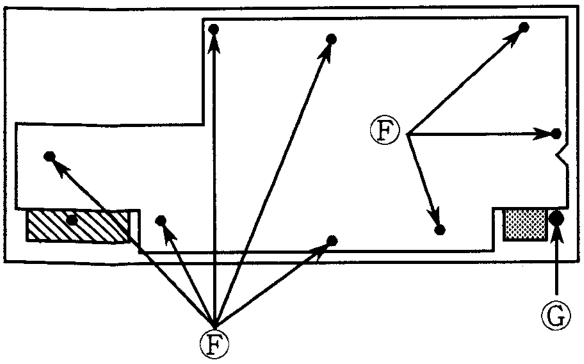


Figure 4 Behind the front panel assembly

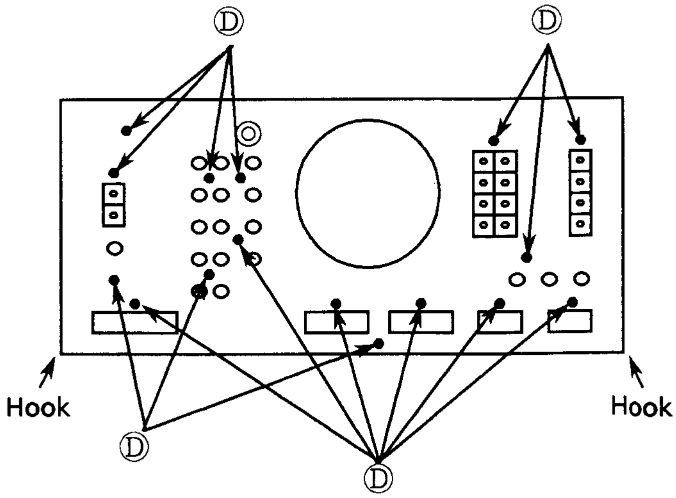
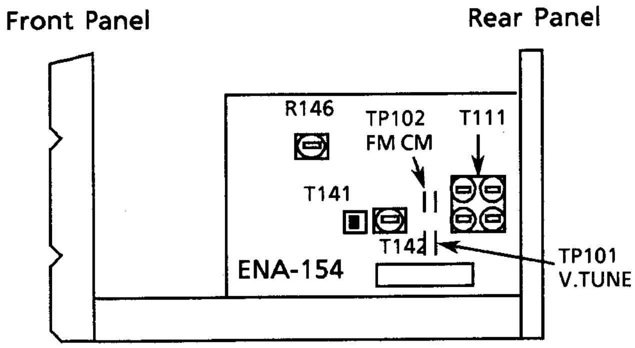


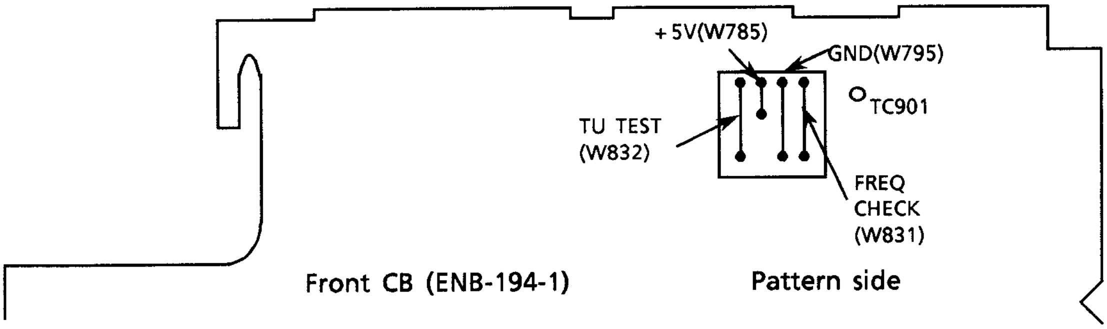
Figure 3 Rear panel

Adjustment Procedures


Front Panel
Rear Panel
R146
TP102
FM CM
T111
T141
T142
ENA-154
TP101
V.TUNE

Clock Adjustment

1. After connecting W832 and W785 with some wire as shown in the figure below, connect the ac power cord into an ac outlet.
2. Confirm that the display is off and remove the wire.
3. Connect a frequency counter to W931 and W795.
4. Adjust TC901 so that the frequency becomes 50000±0.29Hz.


+5V(W785)
GND(W795)
TC901
TU TEST
(W832)
FREQ
CHECK
(W831)
Front CB (ENB-194-1)
Pattern side

(1) Tuning voltage

Confirm the voltages at TP101 is within the standard values shown in the table below. If the voltages are not satisfied, replace T111 for MW and for LW or FE101 for FM.

FM Tuning voltage (Unit : V)

Area	Frequency	
	87.5MHz	108MHz
Continental Europe	1.6 ± 1.0 (V)	8.0 ± 2.0 (V)

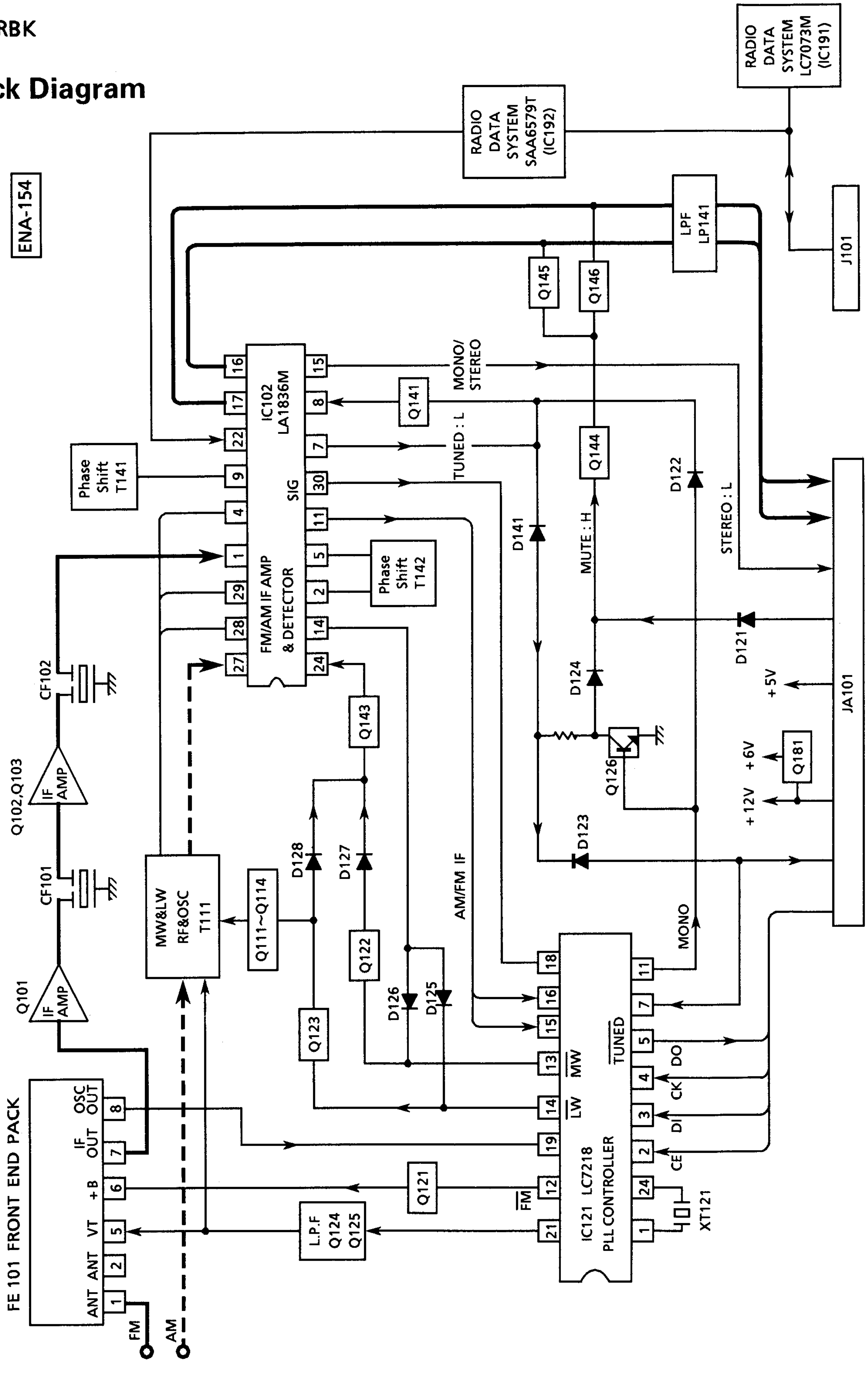
AM Tuning voltage (Unit : V)

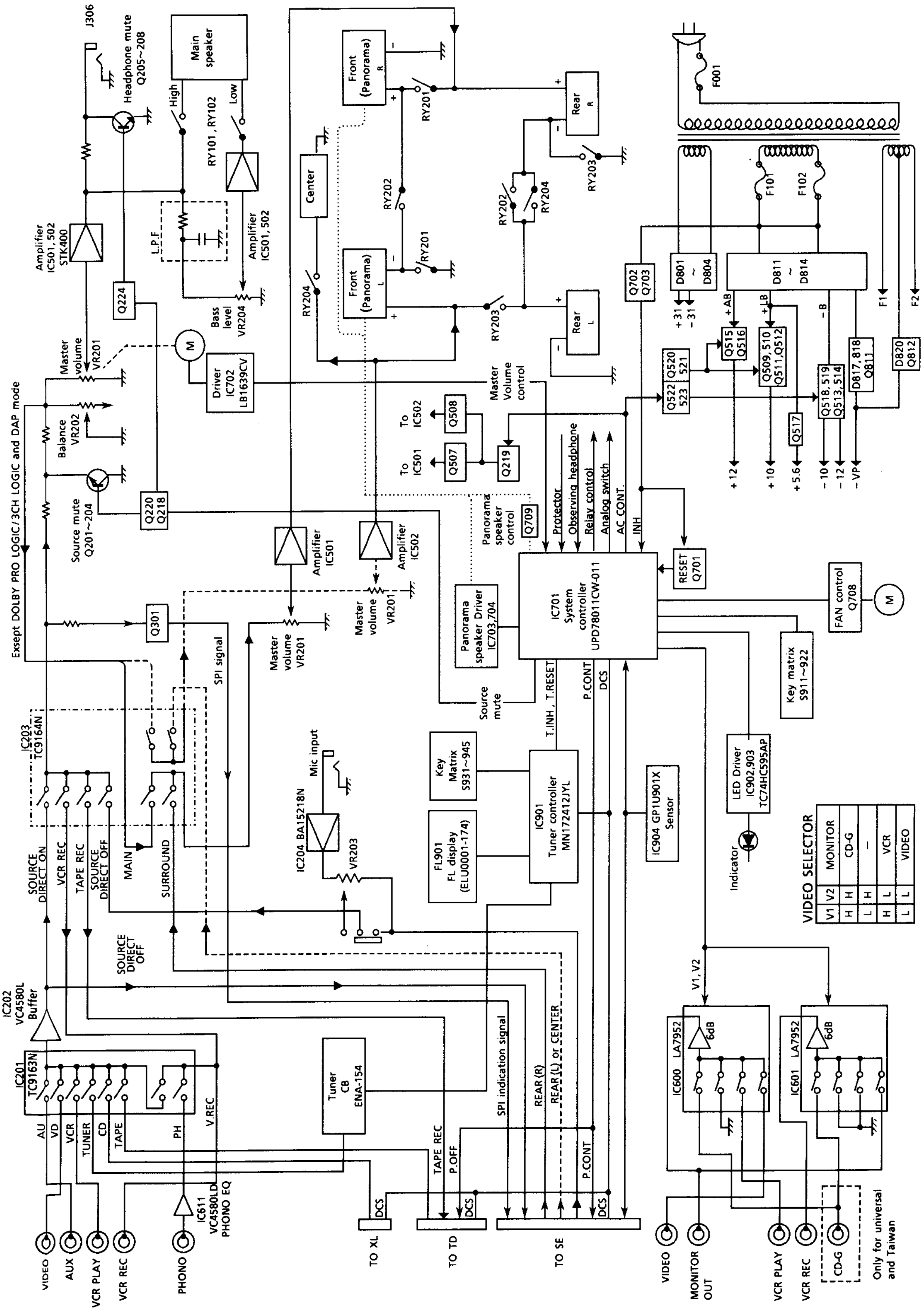
Area	Frequency (MW)		Frequency (LW)	
	522KHz	1629KHz	144kHz	288kHz
Continental Europe	1.0 〉 0.5	7.5 〈 8.5	1.0 〉 0.5	5.0 〈 7.5

(2) FM center meter

Receive a broadcast by using the function of ‘AUTO STOP’.
Adjust T141 (detector coil) so that the voltage at TP102 becomes 0±1.5mV.

Block Diagram


ENA-154
FE 101 FRONT END PACK
ANT 1
ANT 2
VT 5
+B 6
IF OUT 7
OSC OUT 8
FM
AM
Q101
IF AMP
CF101
Q102,Q103
IF AMP
CF102
MW&LW RF&OSC T111
Q111~Q114
L.P.F Q124 Q125
Q121
Q123
Q122
D128
D127
D126
D125
Q143
Phase Shift T141
Phase Shift T142
IC102 LA1836M
FM/AM IF AMP & DETECTOR
SIG
16
17
22
9
4
1
29
28
27
15
8
7
30
11
5
2
14
24
MONO/ STEREO
TUNED : L
AM/FM IF
Q141
Q144
Q145
Q146
MUTE : H
D141
D124
D123
D122
D121
Q126
STEREO : L
MONO
IC121 LC7218 PLL CONTROLLER
18
16
15
13
MW
14
LW
19
12
FM
21
11
7
5
TUNED
4
DO
3
CK
2
DI
CE
24
1
XT121
LPF LP141
RADIO DATA SYSTEM SAA6579T (IC192)
RADIO DATA SYSTEM LC7073M (IC191)
J101
JA101
+5V
+6V
+12V
Q181


J306
Headphone mute Q205~208
Main speaker
High
Low
RY101, RY102
Amplifier IC501, 502 STK400
L.P.F
Amplifier IC501, 502
Q224
Bass level VR204
Master volume VR201
M
Driver IC702 LB1639CV
Balance VR202
Exsept DOLBY PRO LOGIC/3CH LOGIC and DAP mode
Source mute Q201~204
Q220 Q218
Q301
SPI signal
IC203 TC9164N
SOURCE DIRECT ON
VCR REC
TAPE REC
SOURCE DIRECT OFF
MAIN
SURROUND
SOURCE DIRECT OFF
IC202 VC4580L Buffer
IC201 TC9163N
AU
VD
VCR
TUNER
CD
TAPE
PH
V.REC
IC611 VC4580LD PHONO EQ
VIDEO
AUX
VCR PLAY
VCR REC
PHONO
Front (Panorama) R
Front (Panorama) L
Center
RY201
RY202
RY203
RY204
Rear R
Rear L
Amplifier IC501
Amplifier IC502
Master volume VR201
To IC502
To IC501
Q508
Q507
Q219
Q709
Panorama speaker control
Master Volume control
Protector
Observing headphone
Relay control
Analog switch
AC CONT.
INH
Panorama speaker Driver IC703,704
IC701 System controller UPD78011CW-011
RESET Q701
FAN control Q708
Key matrix S911~922
Source mute
T.INH. T.RESET
P.CONT
DCS
Mic input
IC204 BA15218N
VR203
Key Matrix S931~945
FL901 FL display (ELU0001-174)
IC901 Tuner controller MN172412JYL
IC904 GP1U901X Sensor
LED Driver IC902,903 TC74HC595AP
Indicator
Tuner CB ENA-154
SPI indication signal
REAR (R)
REAR (L) or CENTER
TAPE REC
P.OFF
P.CONT
DCS
TO XL
TO TD
TO SE
F001
F101
F102
D801 ~ D804
D811 ~ D814
Q702 Q703
+31
−31
+AB
+LB
−B
F1
F2
Q515 Q516
Q520 521
Q522 523
Q509,510 Q511,Q512
Q517
Q518,519 Q513,514
D817,818 Q811
D820 Q812
+12
+10
+5.6
−10
−12
−VP
V1, V2
IC600 LA7952
IC601 LA7952
6dB
VIDEO
MONITOR OUT
VCR PLAY
VCR REC
CD-G
Only for universal and Taiwan

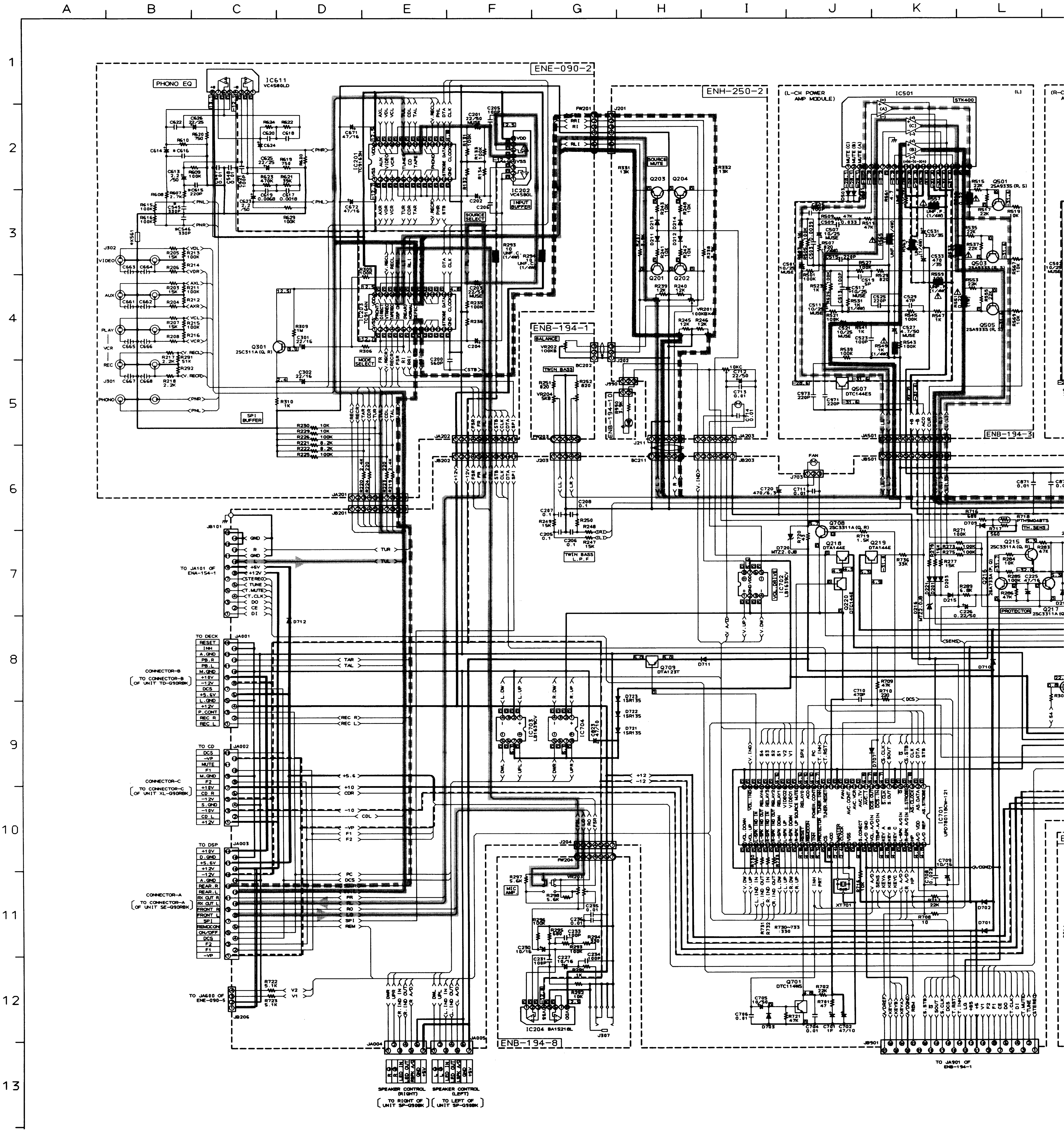
VIDEO SELECTOR

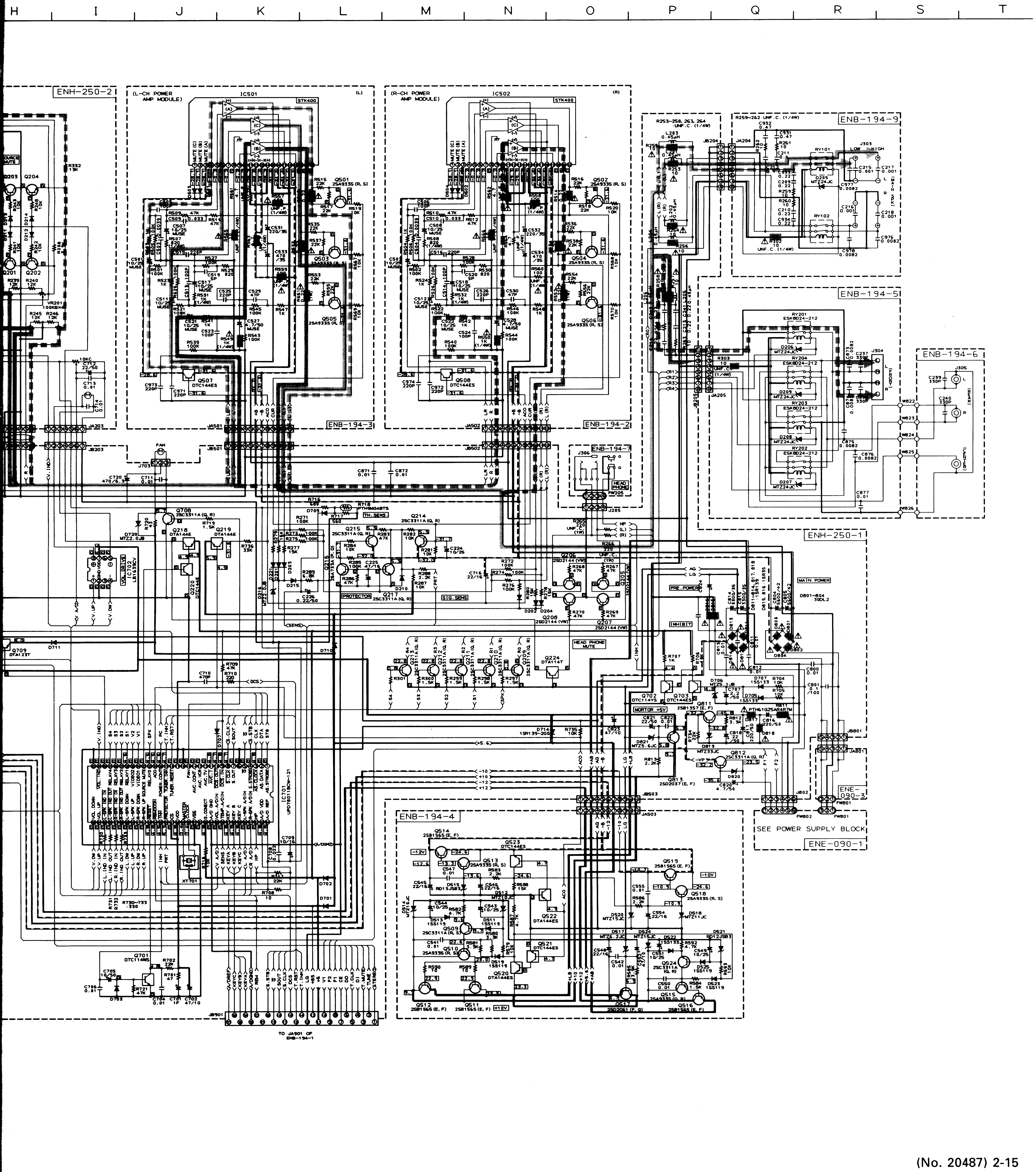
V1	V2	MONITOR
H	H	CD-G
L	H	–
H	L	VCR
L	L	VIDEO

—— MEMO ——

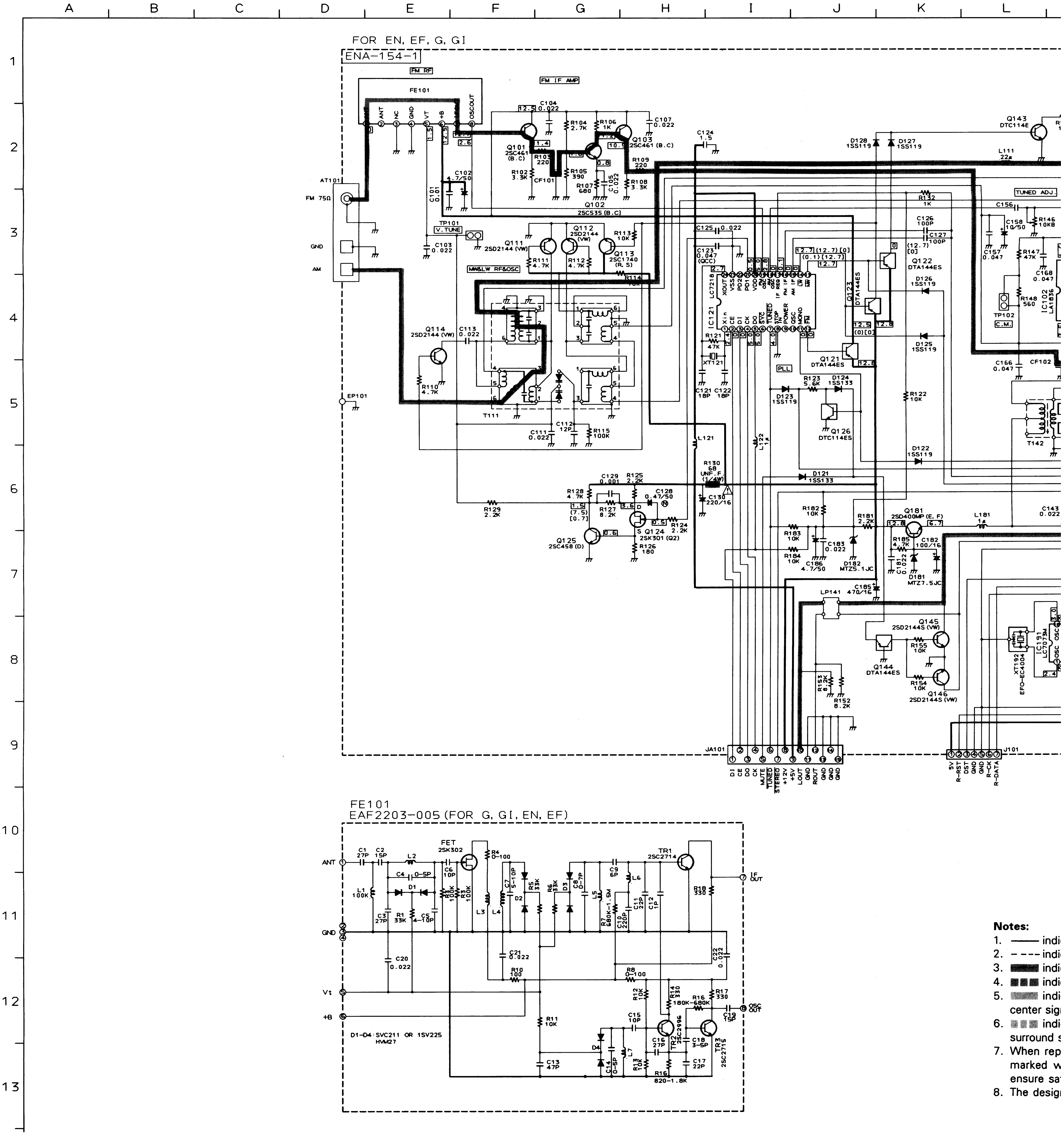
Schematic Diagrams

(1) Main, Input/Output & Power Amplifier Section


A
B
C
D
E
F
G
H
I
J
K
L
1
2
3
4
5
6
7
8
9
10
11
12
13
ENE-090-2
ENH-250-2
ENB-194-1
ENB-194-3
ENB-194-8
ENB-194-10
PHONO EQ
IC611 VC4580LD
IC201 TC9163N
IC202 VC4580L
INPUT BUFFER
SOURCE SELECT
IC203 TC9164N
MODE SELECT
SOURCE MUTE
BALANCE
TWIN BASS
TWIN BASS L.P.F
SP1 BUFFER
(L-CH POWER AMP MODULE)
IC501
STK400
PROTECTOR
TH.SENS
IC701 UPD78011BCW-121
IC702 LB1639CV
IC703 LB1639CV
IC704
IC204 BA15218L
MIC AMP
XT701
FAN
VIDEO
AUX
PLAY
VCR
REC
PHONO
J301
J302
TO JA101 OF ENA-154-1
TO DECK
CONNECTOR-B
(TO CONNECTOR-B OF UNIT TD-G90RBK)
TO CD
CONNECTOR-C
(TO CONNECTOR-C OF UNIT XL-G90RBK)
TO DSP
CONNECTOR-A
(TO CONNECTOR-A OF UNIT SE-G90RBK)
TO JA680 OF ENE-090-5
SPEAKER CONTROL (RIGHT)
(TO RIGHT OF UNIT SP-G90BK)
SPEAKER CONTROL (LEFT)
(TO LEFT OF UNIT SP-G90BK)
TO JA901 OF ENB-194-1

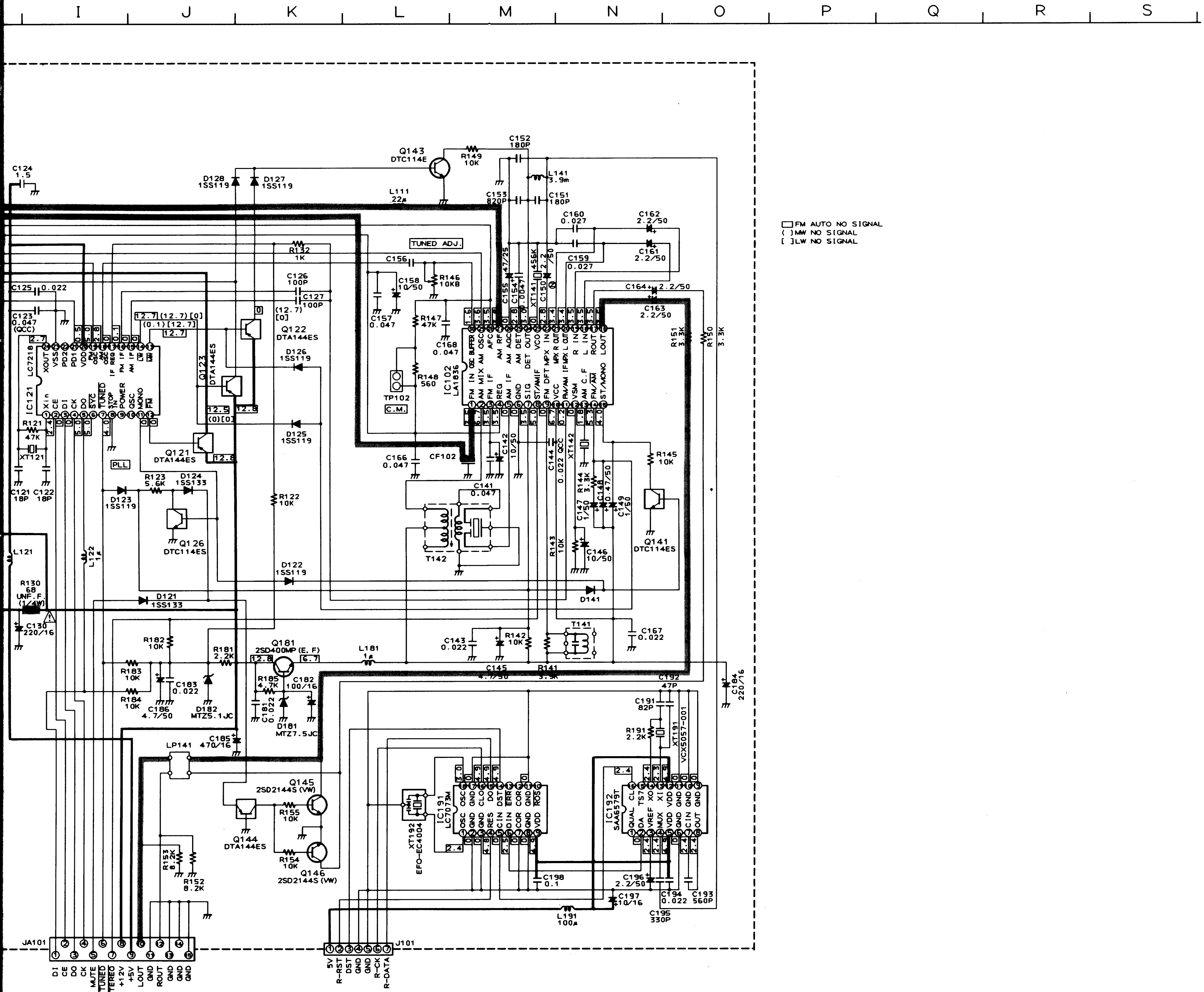

H
I
J
K
L
M
N
O
P
Q
R
S
T
ENH-250-2
(L-CH POWER AMP MODULE)
IC501
STK400
(R-CH POWER AMP MODULE)
IC502
ENB-194-9
ENB-194-5
ENB-194-6
ENB-194-7
ENB-194-3
ENB-194-2
ENH-250-1
ENB-194-4
ENE-090-3
SEE POWER SUPPLY BLOCK
ENE-090-1
PROTECTOR
SIG.SENS
TH.SENS
HEAD PHONE MUTE
MAIN POWER
PRE.POWER
INHIBIT
MORTOR +5V
IC701
UPD78011BCW-121
VOL DRIVE
TO JA901 OF ENB-194-1

(2) Tuner Section


A
B
C
D
E
F
G
H
I
J
K
L
1
2
3
4
5
6
7
8
9
10
11
12
13
FOR EN, EF, G, GI
ENA-154-1
FM RF
FM IF AMP
FE101
ANT
NC
GND
VT
+B
OSCOUT
AT101
FM 75Ω
GND
AM
Q101 2SC461 (B.C)
Q102 2SC535 (B.C)
Q103 2SC461 (B.C)
CF101
TP101 V.TUNE
Q111 2SD2144 (VW)
Q112 2SD2144 (VW)
Q113 2SC1740 (R, S)
MW&LW RF&OSC
Q114 2SD2144 (VW)
T111
EP101
IC121 LC7218
XT121
PLL
Q121 DTA144ES
Q122 DTA144ES
Q123 DTA144ES
Q124 2SK301 (Q2)
Q125 2SC458 (D)
Q126 DTC114ES
Q143 DTC114E
Q144 DTA144ES
Q145 2SD2144S (VW)
Q146 2SD2144S (VW)
Q181 2SD400MP (E, F)
D181 MTZ7.5JC
D182 MTZ5.1JC
LP141
L181
TUNED ADJ.
TP102 C.M.
CF102
T142
IC191 LC7073M
XT192 EFO-EC4004
JA101
DI
CE
DO
CK
MUTE
TUNED
STEREO
+12V
+5V
LOUT
GND
ROUT
GND
GND
GND
J101
5V
R-RST
DST
GND
GND
R-CK
R-DATA
FE101
EAF2203-005 (FOR G, GI, EN, EF)
ANT
GND
Vt
+B
FET 2SK302
TR1 2SC2714
TR2 2SC2996
TR3 2SC2715
IF OUT
OSC OUT
D1-D4: SVC211 OR 1SV225 HVM27

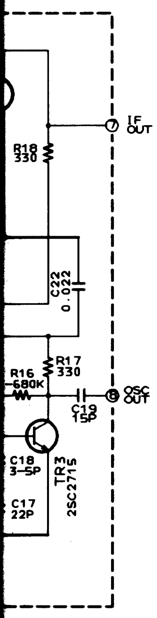
Notes:

1. ——— indi
2. - - - - indi
3. ▬ indi
4. ■■■ indi
5. ▨ indi center sig
6. ▨▨▨ indi surround s
7. When rep marked w ensure sa
8. The desig



I
J
K
L
M
N
O
P
Q
R
S
C124 1.5
C125 0.022
C123 0.047 (QCC)
IC121 LC7218
XOUT
VSS
PD2
PD1
VDD
SYC
TUNED
STOP
IN
POWER
OSC
MONO
FM
PLL
R121 47K
XT121
C121 18P
C122 18P
L121
R130 68 UNF.F (1/4W)
C130 220/16
L122 1μ
D128 1SS119
D127 1SS119
R132 1K
C126 100P
C127 100P
Q122 DTA144ES
Q123 DTA144ES
D126 1SS119
D125 1SS119
Q121 DTA144ES
R123 5.6K
D124 1SS133
D123 1SS119
Q126 DTC114ES
R122 10K
D122 1SS119
D121 1SS133
R182 10K
R183 10K
R184 10K
C186 4.7/50
C183 0.022
R181 2.2K
D182 MTZ5.1JC
Q181 2SD400MP (E, F)
R185 4.7K
C181 0.022
C182 100/16
D181 MTZ7.5JC
L181 1μ
LP141
C185 470/16
Q145 2SD2144S (VW)
Q146 2SD2144S (VW)
R155 10K
R154 10K
Q144 DTA144ES
R153 8.2K
R152 8.2K
JA101
DI
CE
DO
CK
MUTE
TUNED
STEREO
+12V
+5V
LOUT
GND
ROUT
GND
GND
GND
Q143 DTC114E
R149 10K
C152 180P
L141 3.9m
L111 22μ
C153 820P
C151 180P
C160 0.027
C162 2.2/50
C161 2.2/50
TUNED ADJ.
C156
C158 10/50
R146 10KB
C157 0.047
R147 47K
C168 0.047
R148 560
TP102
C.M.
IC102 LA1836
FM IN
AM MIX
AM OSC
FM IF
OSC BUFFER
AFC
AM RF
AM AGC
AM IF
GND
AM DET
DET OUT
VCO
ST/AMIF
FM DET
S.SIG
REG
VCC
MPX IN
FM/AM IF
MPX L OUT
MPX R OUT
VSM
AM C.F
R IN
L IN
ROUT
LOUT
FM/AM
ST/MONO
C155 47/25
C154 0.0047
C150 0.047
XT141 456K
C159 0.027
C164 2.2/50
C163 2.2/50
R151 3.3K
R150 3.3K
C166 0.047
CF102
C142 10/50
C141 0.047
T142
C144 0.022 QCC
XT142
R144 3.3K
C148 0.47/50
C147 1/50
C149 1/50
R143 10K
C146 10/50
R145 10K
Q141 DTC114ES
D141
T141
C143 0.022
R142 10K
C167 0.022
C145 4.7/50
R141 3.9K
C184 220/16
C192 47P
C191 82P
R191 2.2K
XT191
VCX5057-001
IC192 SAA6579T
QUAL
DA
VREF
MUX
VDD
CIN
CL
TS7
XI
XO
GND
OUT
XT192 EFO-EC4004
IC191 LC7073M
OSC
GND
RES
CIN
COR
CLO
DO
DST
ERR
ROS
VDD
C198 0.1
C196 2.2/50
C197 10/16
C194 0.022
C193 560P
C195 330P
L191 100μ
J101
5V
R-RST
DST
GND
GND
R-CK
R-DATA

□FM AUTO NO SIGNAL
( )MW NO SIGNAL
[ ]LW NO SIGNAL

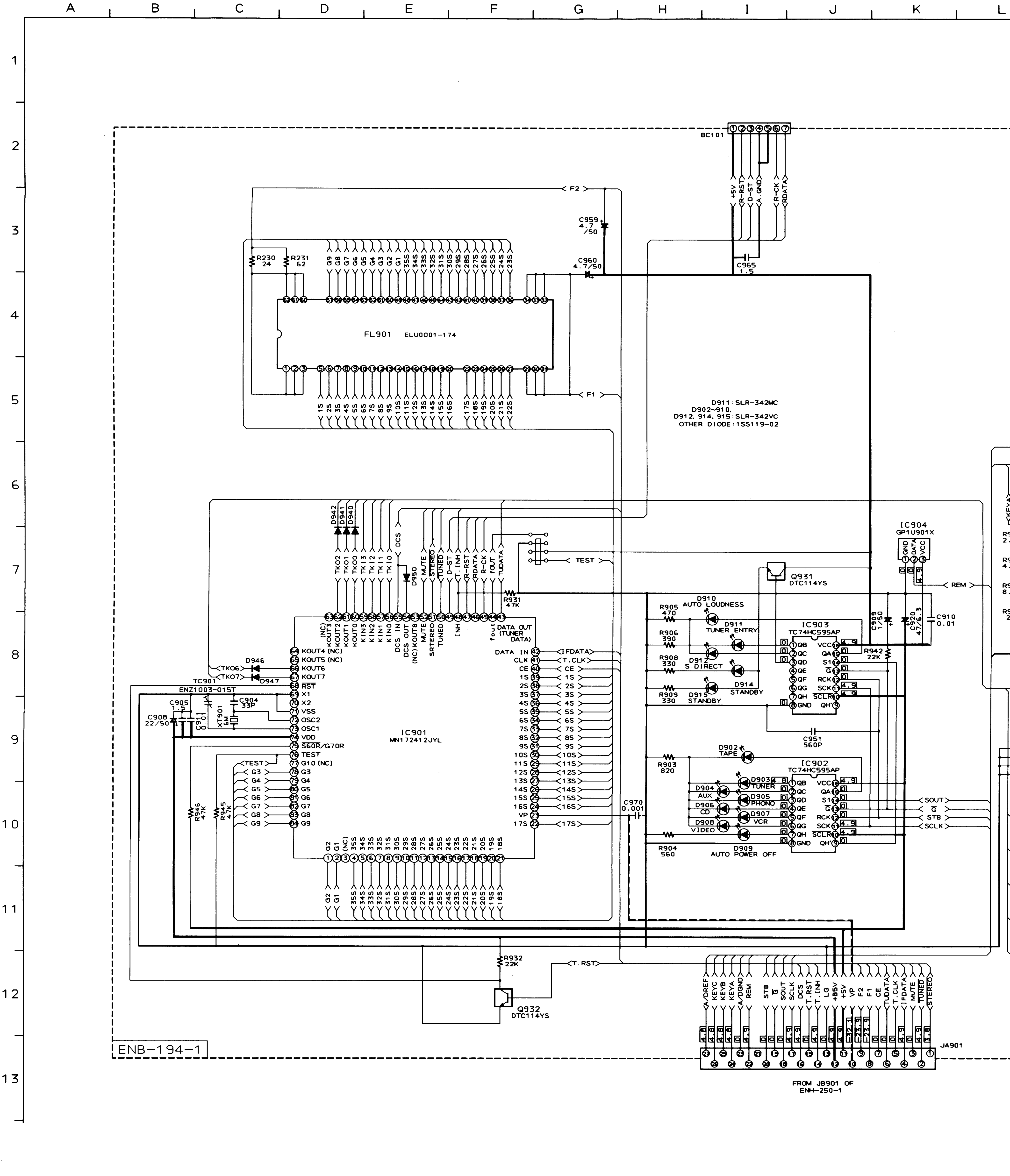


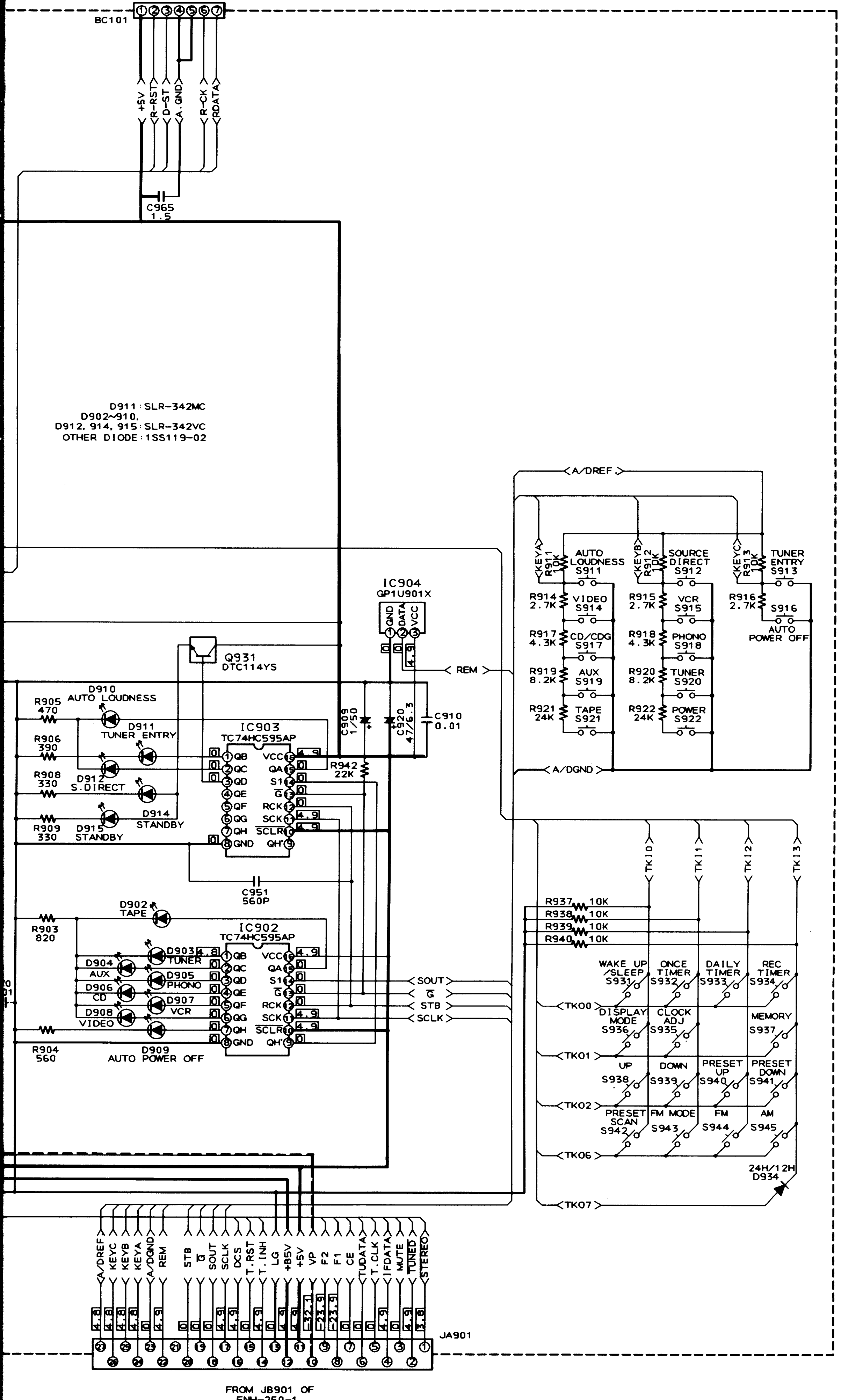
IF OUT
R18 330
C22 0.022
R17 330
R16 680K
OSC OUT
C19 15P
C18 3-5P
TR3 2SC2715
C17 22P

Notes:

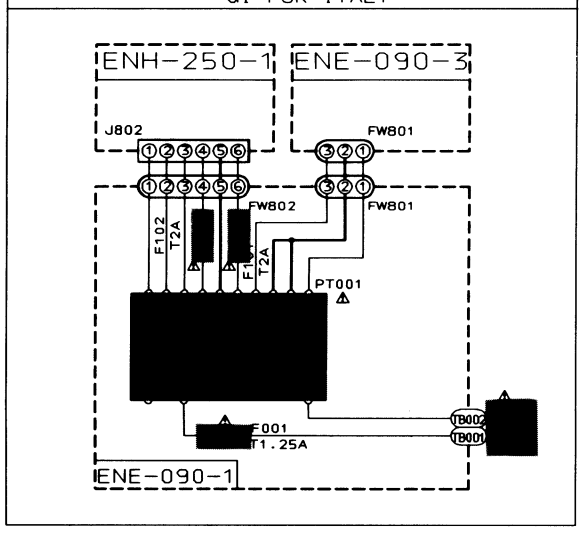
1. ―― indicates + B power supply.
2. – – – – indicates – B power supply.
3. ▬ indicates main signal path.
4. ■■■ indicates low frequency of main signal path.
5. ▨ indicates left signal path for front or rear surround and center signal path for dolby pro-logic.
6. ▨▨▨ indicates right signal path for front or rear surround and surround signal path for dolby pro-logic.
7. When replacing the parts in the shaded are (■) and those marked with ⚠ , be sure to use the designated parts to ensure safety.
8. The design and contents are subject to change without notice.

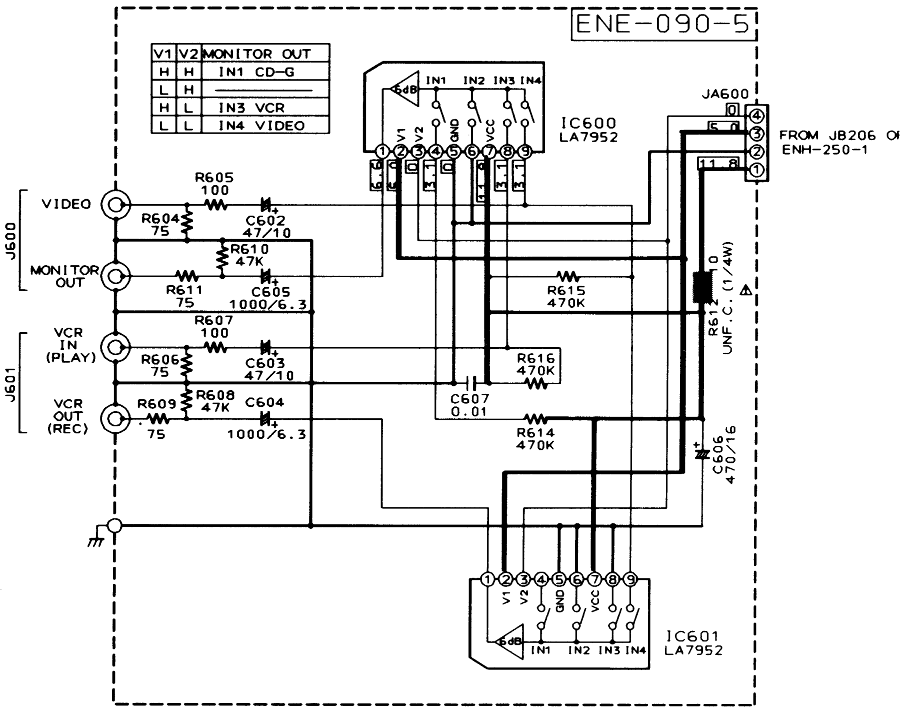
(3) Front & Power Primary Section


A
B
C
D
E
F
G
H
I
J
K
L
1
2
3
4
5
6
7
8
9
10
11
12
13
BC101
+5V
R-RST
D-ST
A.GND
R-CK
RDATA
F2
C959 4.7 /50
C960 4.7/50
C965 1.5
R230 24
R231 62
FL901 ELU0001-174
F1
D911 : SLR-342MC
D902~910,
D912, 914, 915 : SLR-342VC
OTHER DIODE : 1SS119-02
D942
D941
D940
DCS
D950
TEST
R931 47K
IC904 GP1U901X
GND
DATA
VCC
REM
Q931 DTC114YS
D910 AUTO LOUDNESS
R905 470
D911 TUNER ENTRY
R906 390
IC903 TC74HC595AP
R908 330
D912 S.DIRECT
D914 STANDBY
R909 330
D915 STANDBY
C909 1/50
C920 47/6.3
C910 0.01
R942 22K
C951 560P
D902 TAPE
R903 820
IC902 TC74HC595AP
D903 TUNER
D904 AUX
D905 PHONO
D906 CD
D907 VCR
D908 VIDEO
R904 560
D909 AUTO POWER OFF
SOUT
STB
SCLK
C970 0.001
D946
D947
TC901
ENZ1003-015T
C905 1.5
C904 33P
C908 22/50
C911 0.01
XT901 6M
IC901 MN172412JYL
DATA OUT (TUNER DATA)
DATA IN
IFDATA
T.CLK
CE
R946 47K
R945 47K
R932 22K
T.RST
Q932 DTC114YS
A/DREF
KEYC
KEYB
KEYA
A/DGND
REM
STB
SOUT
SCLK
DCS
T.RST
T.INH
LG
+B5V
+5V
VP
F2
F1
CE
TUDATA
T.CLK
IFDATA
MUTE
TUNED
STEREO
JA901
FROM J8901 OF ENH-250-1
ENB-194-1


BC101
+5V
R-RST
D-ST
A.GND
R-CK
RDATA
C965
1.5
D911 : SLR-342MC
D902~910,
D912, 914, 915 : SLR-342VC
OTHER DIODE : 1SS119-02
IC904
GP1U901X
GND
DATA
VCC
REM
Q931
DTC114YS
C909
1/50
C920
47/6.3
C910
0.01
R942
22K
IC903
TC74HC595AP
IC902
TC74HC595AP
R905 470
D910 AUTO LOUDNESS
R906 390
D911 TUNER ENTRY
R908 330
D912 S.DIRECT
D914 STANDBY
R909 330
D915 STANDBY
C951
560P
D902 TAPE
R903 820
D903 TUNER
D904 AUX
D905 PHONO
D906 CD
D907 VCR
D908 VIDEO
R904 560
D909 AUTO POWER OFF
SOUT
CI
STB
SCLK
A/DREF
A/DGND
KEYA
KEYB
KEYC
R911 10K
R912 10K
R913 10K
AUTO LOUDNESS S911
SOURCE DIRECT S912
TUNER ENTRY S913
R914 2.7K
VIDEO S914
R915 2.7K
VCR S915
R916 2.7K
S916 AUTO POWER OFF
R917 4.3K
CD/CDG S917
R918 4.3K
PHONO S918
R919 8.2K
AUX S919
R920 8.2K
TUNER S920
R921 24K
TAPE S921
R922 24K
POWER S922
TKI0
TKI1
TKI2
TKI3
R937 10K
R938 10K
R939 10K
R940 10K
WAKE UP /SLEEP S931
ONCE TIMER S932
DAILY TIMER S933
REC TIMER S934
TKO0
DISPLAY MODE S936
CLOCK ADJ S935
MEMORY S937
TKO1
UP S938
DOWN S939
PRESET UP S940
PRESET DOWN S941
TKO2
PRESET SCAN S942
FM MODE S943
FM S944
AM S945
TKO6
24H/12H D934
TKO7
A/DREF
KEYC
KEYB
KEYA
A/DGND
REM
STB
CI
SOUT
SCLK
DCS
T.RST
T.INH
LG
+B5V
+5V
VP
F2
F1
CE
TUDATA
T.CLK
IFDATA
MUTE
TUNED
STEREO
JA901
FROM JB901 OF ENH-250-1

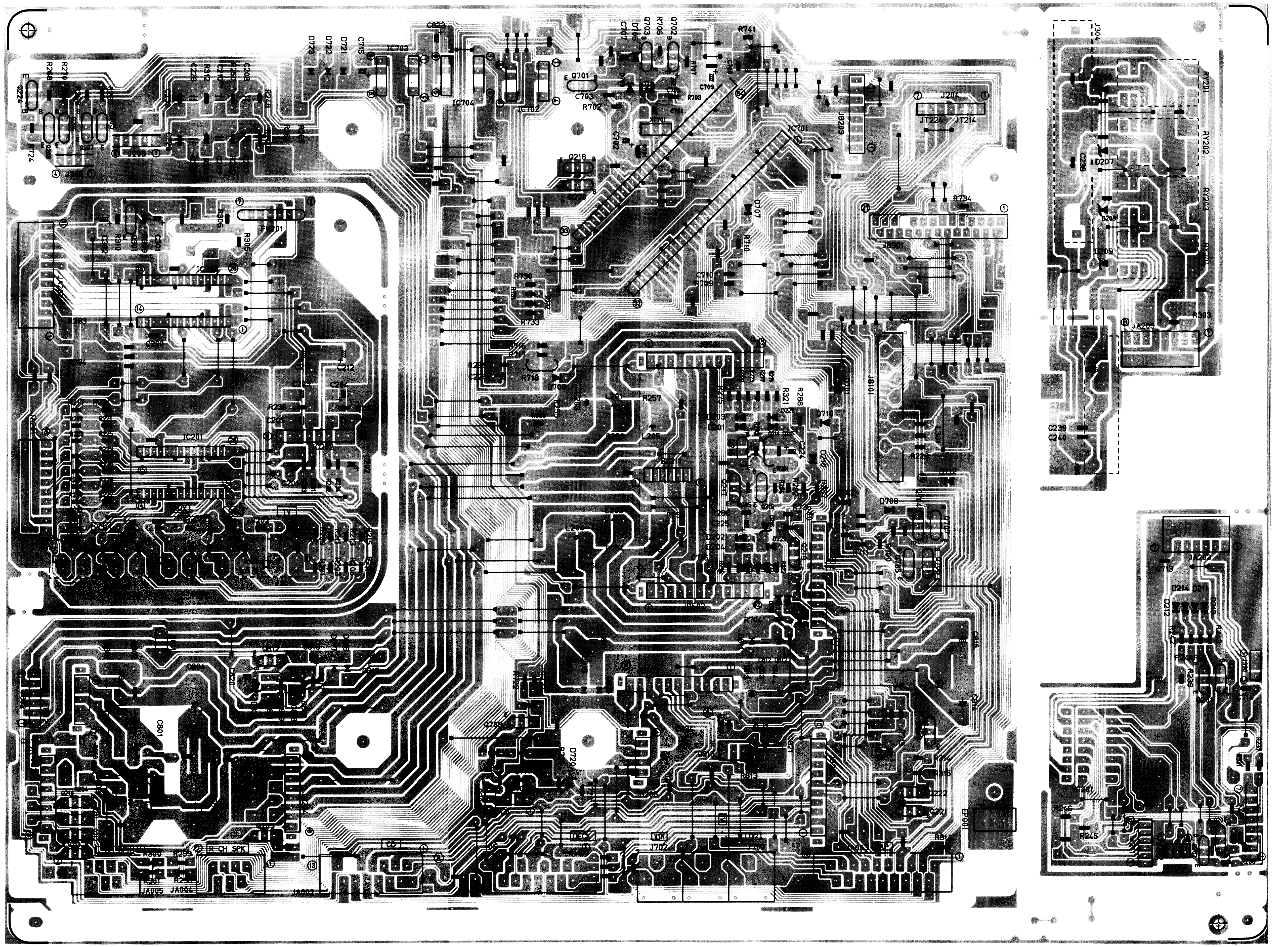
(EN, EF, G, GI) EN FOR SCANDINAVIA
EF FOR CONTINENTAL EUROPE
G FOR GERMANY
GI FOR ITALY


ENH-250-1
ENE-090-3
J802
FW801
FW802
F102
T2A
F101
T2A
PT001
F001
T1.25A
TB002
TB001
ENE-090-1


ENE-090-5
V1 V2 MONITOR OUT
H H IN1 CD-G
L H
H L IN3 VCR
L L IN4 VIDEO
IN1 IN2 IN3 IN4
6dB
V1 V2 GND VCC
IC600
LA7952
JA600
FROM JB206 OF ENH-250-1
VIDEO
J600
MONITOR OUT
R605 100
R604 75
C602 47/10
R610 47K
R611 75
C605 1000/6.3
R615 470K
R617 10 UNF.C. (1/4W)
VCR IN (PLAY)
J601
VCR OUT (REC)
R607 100
R606 75
C603 47/10
R608 47K
R609 75
C604 1000/6.3
R616 470K
C607 0.01
R614 470K
C606 470/16
IC601
LA7952

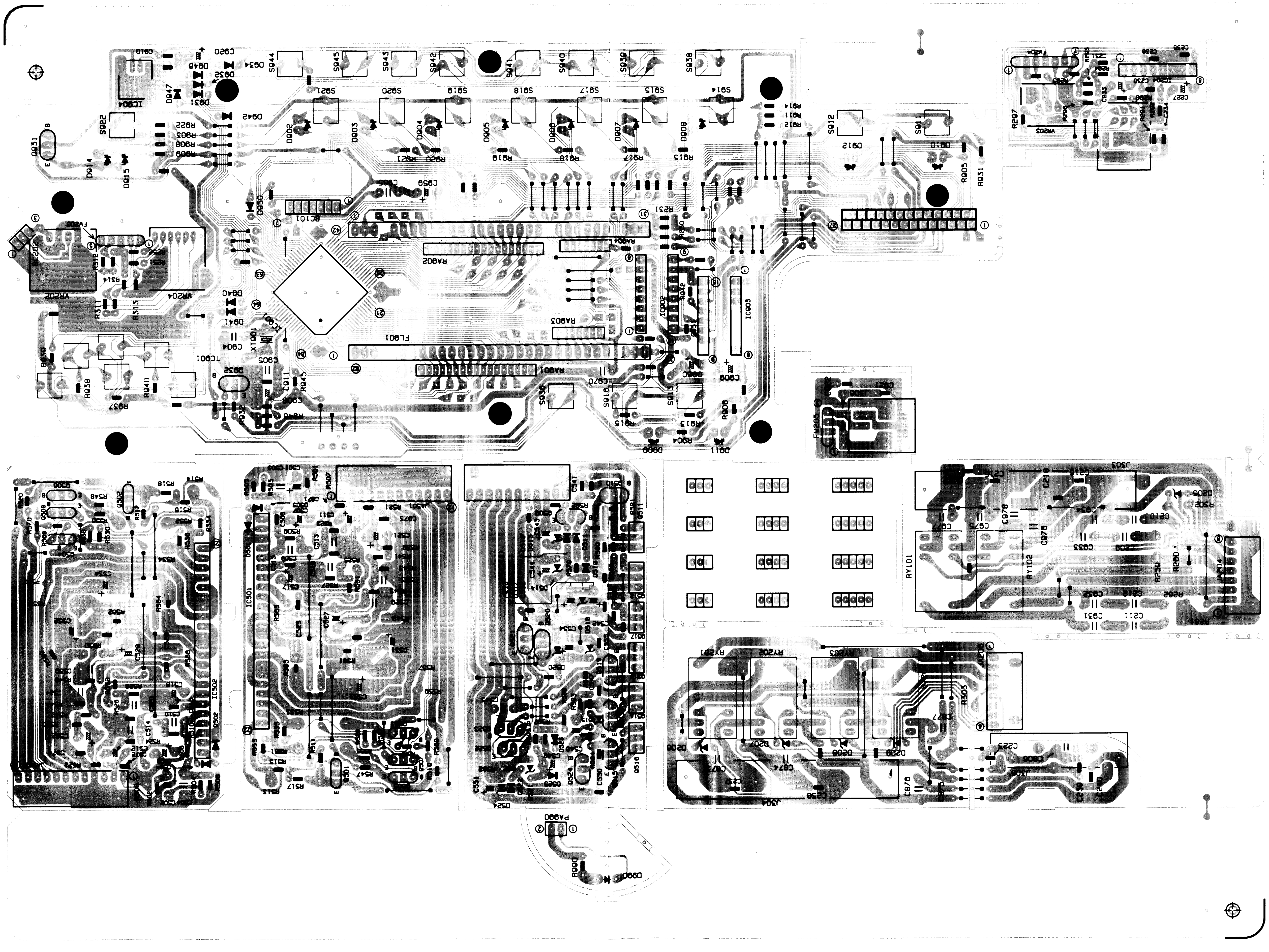
Printed Circuit Boards

(1) Main & Volume P.C. Board (ENH-250)


IC701
IC702
IC703
IC704
IC201
IC203
J204
J205
JB203
JB501
JB502
JB901
JB101
JA203
JA004
JA005
JA002
FM201
RY201
RY202
RY203
RY204
J304
EP001
R-CH SPK
C801
C815
Q701
Q218
Q220
Q224
D206
D207
D209
D707
D720
R741
R734
R733
R303
R814

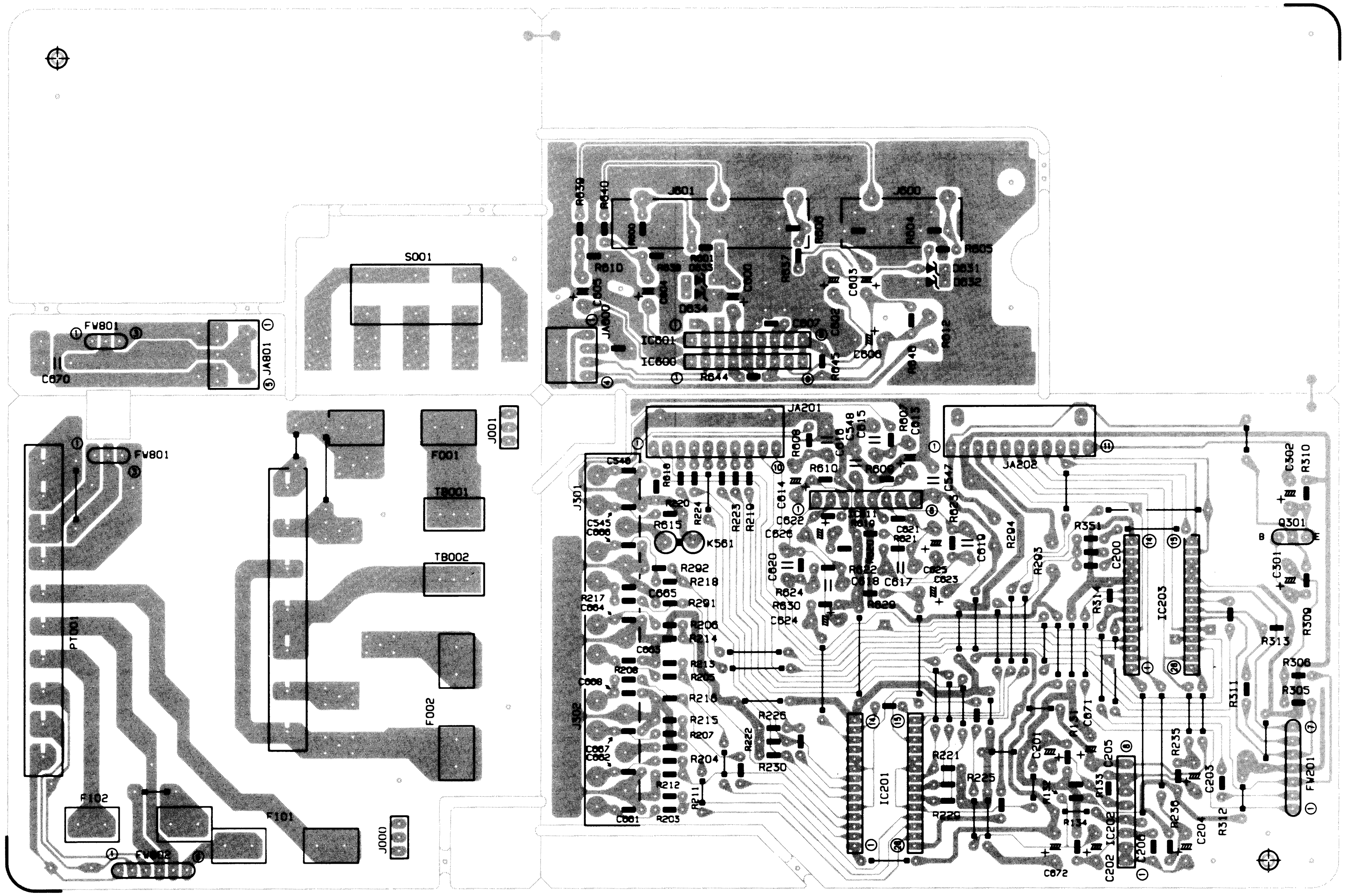
RX-G90RBK

(2) Front,Speaker & Amplifier P.C. Board (ENB-194)

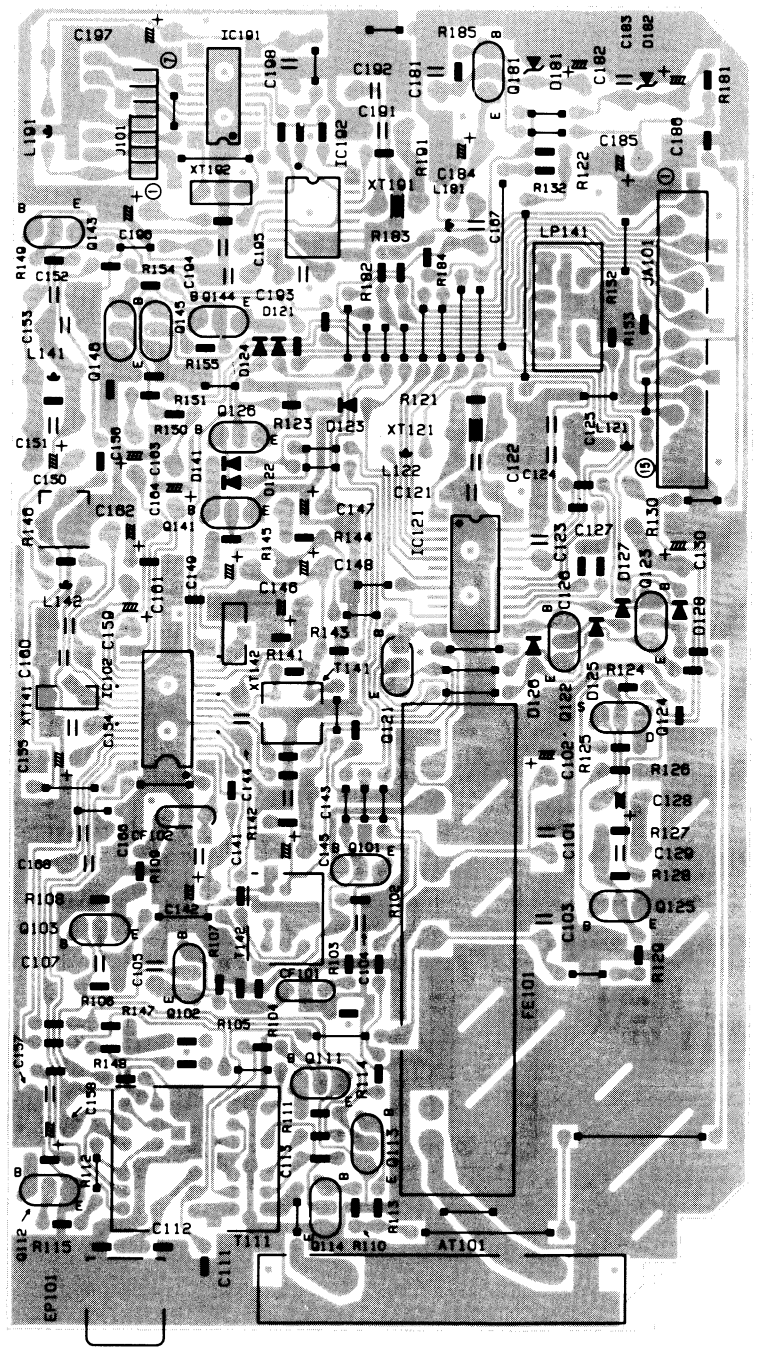

IC501
IC502
IC902
IC903
FL901
RY101
RY102
RY201
RY202
RY203
RY204
VR202
VR204
XT901
J304
J305
J506

2-19 (No. 20487)

(3) Sourec Selector & Power Supply P.C. Board (ENE-090)


S001
J801
J800
R839
R840
R810
R805
D831
D832
D834
IC801
IC800
R844
R812
JA800
C670
FW801
JA801
J001
F001
TB001
TB002
PT001
F002
F102
F101
FW802
J000
JA201
JA202
J301
C546
C545
C547
R615
K561
R610
R292
R218
R291
R217
R206
R214
R213
R205
R216
R215
R207
R204
R212
R203
R211
R222
R226
R230
R223
R219
R224
R220
R620
R624
R630
C620
C624
C617
C618
C619
C622
C623
C626
C621
C665
C664
C663
C662
C661
C668
C667
C671
C672
IC201
IC202
IC203
R221
R225
R229
R234
R235
R236
R351
C200
R314
R313
R311
R312
R310
R309
R306
R305
C301
C302
Q301
C201
C202
C203
C204
C205
C206
FW201
R204
R203

(4) Tuner P. C. Board (ENA-154)


C197
IC191
R185
C183
D182
R181
C198
C192
C191
C181
Q181
D181
C182
L191
J101
IC192
R191
C185
C186
XT192
XT191
C184
L181
R132
R122
C196
C194
C195
R183
C187
LP141
JA101
R140
C152
Q143
R154
Q144
C193
D121
R182
R184
C153
L141
Q145
Q140
R155
D124
R151
Q126
R121
XT121
R123
D123
R150
C151
C156
C150
D141
Q122
L122
C121
C122
C124
L121
C125
C127
R130
C130
R146
C162
Q141
C147
R144
IC121
C123
C126
D127
Q123
C148
C149
C161
C146
L142
R143
Q124
D128
C160
C159
IC102
XT142
R141
T141
D126
Q122
D125
R124
XT141
C154
Q121
C102
R125
R126
C155
C128
CF102
C143
R127
C106
C100
C141
R142
C144
C145
Q101
C101
C129
R108
R109
C142
R101
R128
Q103
C107
C105
R107
T142
R103
C104
C103
FE101
Q125
R129
R106
R147
Q102
R105
CF101
R104
C157
R148
Q111
R114
C158
R111
Q113
C113
L112
Q112
R115
C112
T111
Q114
R110
R113
AT101
C111
EP101

]

SE-G90RBK

– Contents–

Discription of Major LSIs 3-2

Internal Connections of the FL Display Tube 3-12

Disassembly Procedures 3-13

Block Diagram 3-14

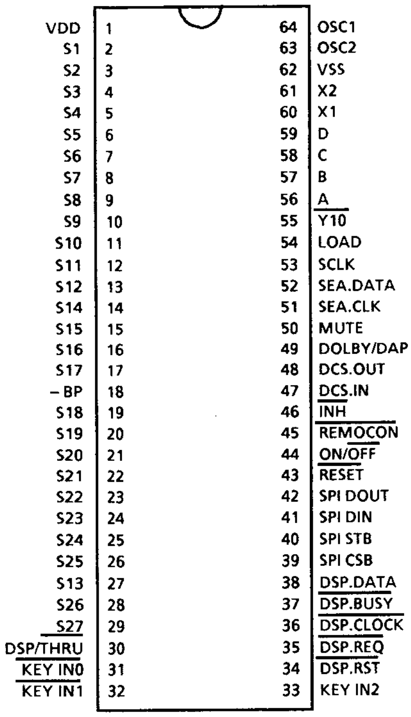
Schematic Diagrams 3-15

Printed Circuit Boards 3-18

Description of ICs

■ MN171X02JHK (IC301) : System controller

1. Terminal Layout


VDD 1
S1 2
S2 3
S3 4
S4 5
S5 6
S6 7
S7 8
S8 9
S9 10
S10 11
S11 12
S12 13
S14 14
S15 15
S16 16
S17 17
– BP 18
S18 19
S19 20
S20 21
S21 22
S22 23
S23 24
S24 25
S25 26
S13 27
S26 28
S27 29
DSP/THRU 30
KEY IN0 31
KEY IN1 32
64 OSC1
63 OSC2
62 VSS
61 X2
60 X1
59 D
58 C
57 B
56 A
55 Y10
54 LOAD
53 SCLK
52 SEA.DATA
51 SEA.CLK
50 MUTE
49 DOLBY/DAP
48 DCS.OUT
47 DCS.IN
46 INH
45 REMOCON
44 ON/OFF
43 RESET
42 SPI DOUT
41 SPI DIN
40 SPI STB
39 SPI CSB
38 DSP.DATA
37 DSP.BUSY
36 DSP.CLOCK
35 DSP.REQ
34 DSP.RST
33 KEY IN2

2. Key matrix

	KEY IN0	KEY IN1	KEY IN2
Y0	–	4Ch / SEP.C	–
Y1	CSRP	DISPLAY	DSEP
Y2	SEA ON/OFF	DEMO	SOOTHING
Y3	FRONT DAP ON/OFF	PRO LOGIC	RELAXING
Y4	DSP ON/OFF	3Ch LOGIC	EXCITING
Y5	CHURCH	FREQUENCY	SOUEEZE
Y6	HALL	LEVEL –	VOC. MASK
Y7	DOME	LEVEL +	KEY CTRL
Y8	LIVE	MEMORY	SCRATCH
Y9	D. CLUB	PRESET	FLANGER

3. Decoder output of IC302

	$\overline{Y0}$	$\overline{Y1}$	$\overline{Y2}$	$\overline{Y3}$	$\overline{Y4}$	$\overline{Y5}$	$\overline{Y6}$	$\overline{Y7}$	$\overline{Y8}$	$\overline{Y9}$
DATA A (56PIN)	L	H	L	H	L	H	L	H	L	H
DATA B (57PIN)	L	L	H	H	L	L	H	H	L	L
DATA C (58PIN)	L	L	L	L	H	H	H	H	L	L
DATA D (59PIN)	L	L	L	L	L	L	L	L	H	H

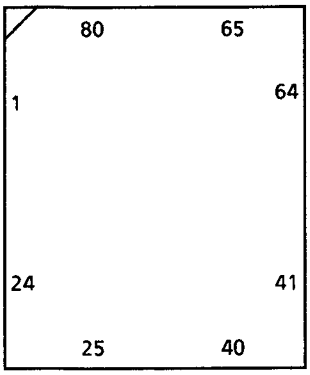
$\overline{Y0}$~$\overline{Y9}$ are the outputs of the shift register IC302.

4. Pin Functions

Pin No.	Symbol	I/O	Functions	Pin No.	Symbol	I/O	Functions
1	VDD	--	Power supply	44	ON/OFF	I	H : power on
2~17	S1~S17	O	Segment control	45	REMOCON	I	Remote control signal input
18		--	Power supply for FL display	46	INH	I	Inhibit signal input
19~29	S18~S27	O	Segment control	47,48	DCS.IN/OUT	I/O	Compulink signal
30	DSP/THRU		L : Pass the DSP circuit.	49	DOLBY/DAP	O	L : DAP
31~33	KEY IN0~2	I	Key matrix input	50	MUTE	O	H : Source direct on
34	DSP.RST	O	Reset signal for DSP μ-com	51	SEA.CLK	O	Clock signal for data transmission to IC251
35	DSP.REQ	O	Request signal for DSP μ-com	52	SEA.DATA	O	Data for IC104
36	DSP.CLOCK	O	Clock for data transmission to μ-com	53	SCLK	O	Clock for FL driver
37	DSP.BUSY	O	Data for sea	54	LOAD	O	Latch clock output of FL display data
38	DSP.DATA	O	DSP data signal output	55	Y10	O	FL grid output
39	SPI CSB	O	Chip select signal to IC251	56~59	A~D	O	Grid control/Key matrix output
40	SPI STB	O	Strobe signal for data transmission to IC251	60	X1	--	Connected to GND
41	SPI DIN	I	SPI data from IC251	61	X2	--	Non connection
42	SPI DOUT	O	Control data for IC251	62	VSS	--	GND
43	RESET	I	Reset signal	63,64	OSC2,1	--	Oscillation terminal

■ MN170801JPU (IC611) : DSP CONTROL μ-COM

1. Terminal Layput

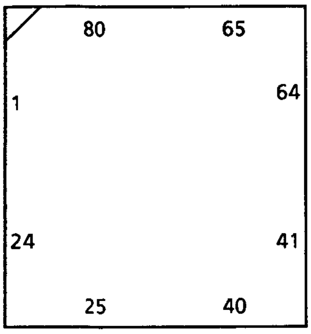


2. Pin Functions

Pin No.	Symbol	I/O	Functions	Pin No.	Symbol	I/O	Functions
1	P13	I	DSP data input from IC301 (DATA)	33	PA0	O	ROM address output
2	P20	I	DSP request input (REQ)	34	PA1	O	ROM address output
3	P21	--	Connect to 2pin	35	PA2	O	ROM address output
4	P22	I	Inhibit input	36	PA3	O	ROM address output
5	P23	--	Connect to 4pin	37	PB0	O	ROM address output
6	P30	--	Connect to +5V	38	PB1	O	ROM address output
7	P31	--	Connect to +5V	39	PB2	O	ROM address output
8	P32	--	Connect to +5V	40	PB3	--	Not used
9	P40	O	Reset signal for ADC	41	PC0	--	Not used
10	P41	--	Not used	42	PC1	--	Not used
11	P42	--	Not used	43	PC2	--	Not used
12	P43	--	Not used	44	PC3	--	Not used
13	P50	--	Not used	45	PD0	O	Reset signal for DSP IC (RES)
14	P51	--	Not used	46	PD1	O	Ready signal for DSP IC (SRDY)
15	P52	--	Not used	47	PD2	O	Request signal DSP IC (SIRQ)
16	P53	O	ROM chip select signal output (CE)	48	PD3	--	Not used
17	P60	I	ROM data input	49	PE0	O	DSP OFF : H (D.MUTE)
18	P61	I	ROM data input	50	PE1	O	Reset signal for DAC (DARST)
19	P62	I	ROM data input	51	RST	I	Reset signal input
20	P63	I	ROM data input	52	X1	--	Connect to +5V
21	P70	I	ROM data input	53	X2	--	Not used
22	P71	I	ROM data input	54	VDD	--	+5V
23	P72	I	ROM data input	55	OSC2	--	Oscillation terminal
24	P73	I	ROM data input	56	OSC1	--	Oscillation terminal
25	P80	O	ROM address output	57	VSS	--	GND
26	P81	O	ROM address output	58	P00	O	Strobe for IC201 (STB)
27	P82	O	ROM address output	59	P01	O	Serial data for IC605, 201 (SICK)
28	P83	O	ROM address output	60	P02	I	Ready signal input which indicates that the serial input is on the execution (SIAK)
29	P90	O	ROM address output	61	P03	O	Serial data for IC605, 201 (SI)
30	P91	O	ROM address output	62	P10	O	It is high while processing data (BUSY)
31	P92	O	ROM address output	63	P11	I	Clock input (CLK)
32	P93	O	ROM address output	64	P12	I	DSP data input from IC301 (DATA)

■ LC83016E (IC605) : DSP (Digital Signal Processor)

1. Terminal Layout

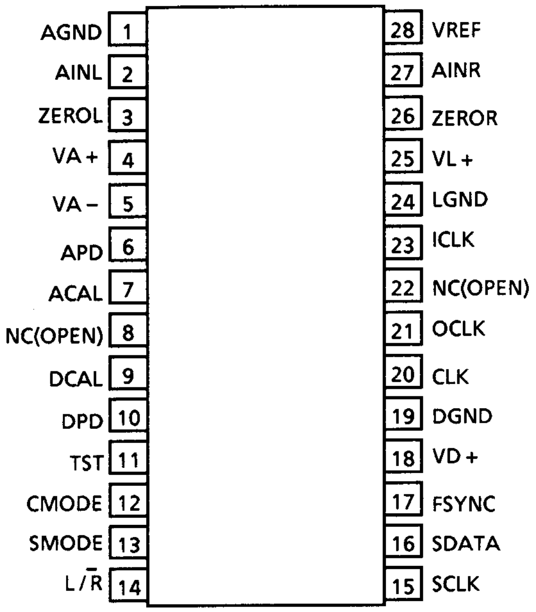


2. Pin Functions

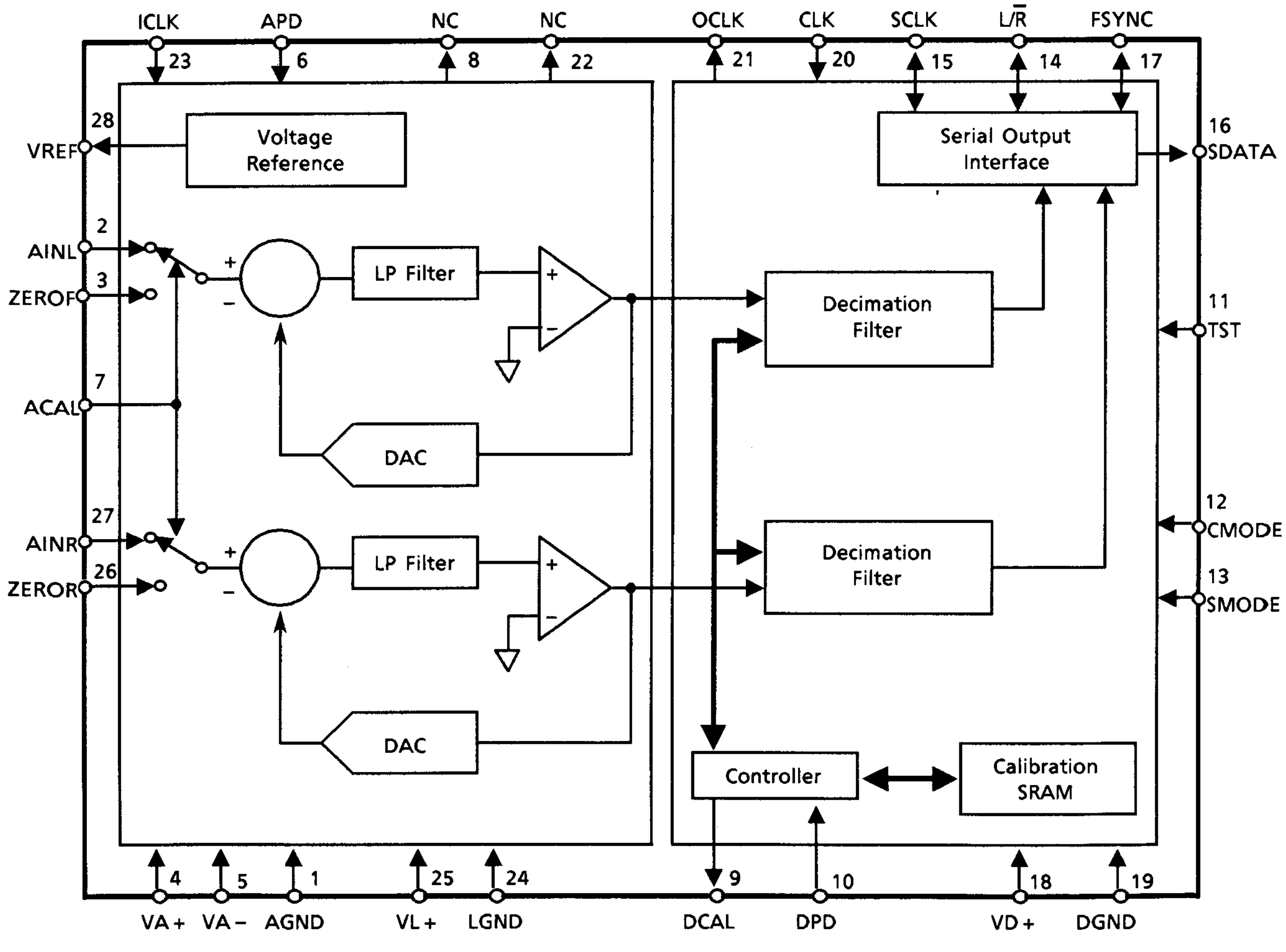
Pin No.	Symbol	I/O	Functions
1~6	P0~P5	--	Not used
7	ASI1	I	Audio data serial 1 input terminal
8	BCK1	I	Bit clock for ASI 1 input
9	FS3841	--	Not used
10	LRCKI	I	L/R channel selectable signal input. (L : R-ch , H : L-ch)
11	ASI2	--	Connected to GND
12	BCK2	I	Bit clock for ASI 2 input
13, 51, 77	VDD1,2,3	--	Power supply (+5V)
14~17,19	TEST1~5	--	Connected to GND
18, 33, 54, 74	VSS1,2,3,4	--	Connected to GND
20	$\overline{\text{RAS}}$	O	ROW ADDRESS STROBE : Signal output when accessing external D-RAM
21	$\overline{\text{CAS}}$	O	COLUMN ADDRESS STROBE : Signal output when accessing external D-RAM
22	$\overline{\text{DWRT}}$	O	Data write signal output when accessing external D-RAM
23	$\overline{\text{DREAD}}$	O	Data read signal output when accessing external D-RAM
24	$\overline{\text{CE}}$/CS	--	Not used
32~25	D0~D7	I/O	Data input / output between external D-RAM and these pins
34~41	A0~A7	O	Address output for external D-RAM
42~50	A8~A16	--	Not used
52	OSC1	I	External clock input. (384fs)
53	OSC2	O	External clock output
55	FS384O	O	384fs or 512fs output
56	FS192O	O	192fs or 256fs output
57,58	FS128O,FS64O	--	Not used
59	FS32O	O	32fs or 16fs output
60	LRCKO	O	L/R channel selectable signal output. (L : R-ch , H : L-ch)
61,62	AOWCK,ASO	--	Not used
63	AOTDF1	O	Audio data serial 1 output terminal
64	AOTDF2	O	Audio data serial 2 output terminal
65	SI	I	Serial clock input for SI input
66	SICK	I	Serial data input from control micro computer
67	$\overline{\text{SIRQ}}$	I	Request signal input for serial input
68	$\overline{\text{SIAK}}$	O	Signal output which indicates that the serial input is on the execution
69	$\overline{\text{SRDY}}$	I	Ready signal input which indicates that the serial data input from control micro computer is an end
70,71,72	SO,SOCK,$\overline{\text{SORQ}}$,$\overline{\text{SOAK}}$	--	Not used
75	$\overline{\text{RES}}$	I	Reset input
76	$\overline{\text{INT}}$	I	Interrupt request signal input
78,79,80	$\overline{\text{SELC}}$,$\overline{\text{SACK1}}$,$\overline{\text{SACK2}}$	--	Connected to GND

■ CS5339-KS (IC604) : Analog to Digital Converter

1. Terminal layout

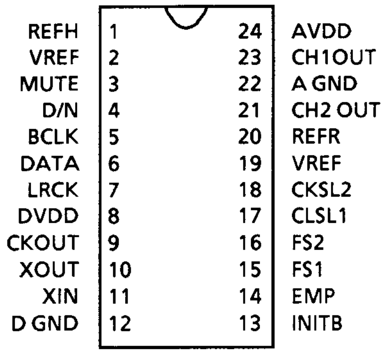

AGND 1
AINL 2
ZEROL 3
VA+ 4
VA− 5
APD 6
ACAL 7
NC(OPEN) 8
DCAL 9
DPD 10
TST 11
CMODE 12
SMODE 13
L/$\overline{R}$ 14
28 VREF
27 AINR
26 ZEROR
25 VL+
24 LGND
23 ICLK
22 NC(OPEN)
21 OCLK
20 CLK
19 DGND
18 VD+
17 FSYNC
16 SDATA
15 SCLK

2. Block diagram

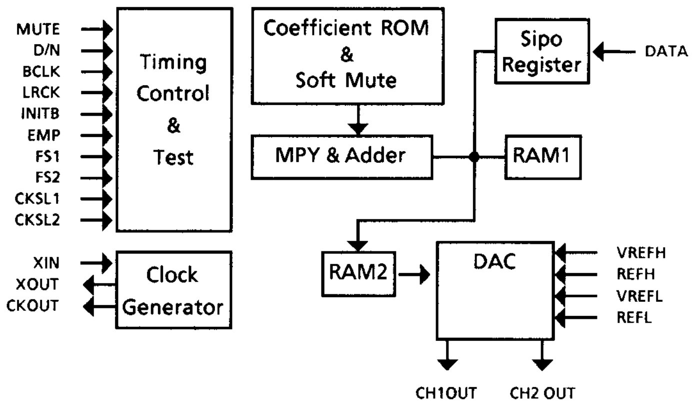

ICLK
23
APD
6
NC
8
NC
22
OCLK
21
CLK
20
SCLK
15
L/$\overline{R}$
14
FSYNC
17
28
VREF
Voltage Reference
2
AINL
3
ZEROL
7
ACAL
27
AINR
26
ZEROR
+
−
LP Filter
DAC
LP Filter
DAC
Serial Output Interface
16
SDATA
Decimation Filter
Decimation Filter
11
TST
12
CMODE
13
SMODE
Controller
Calibration SRAM
4
5
1
25
24
9
10
18
19
VA+
VA−
AGND
VL+
LGND
DCAL
DPD
VD+
DGND

■ LC78835MX (IC608,609) : 8-Times Oversampling · 18-Bit D/A Converter

1. Terminal Layout


REFH 1
VREF 2
MUTE 3
D/N 4
BCLK 5
DATA 6
LRCK 7
DVDD 8
CKOUT 9
XOUT 10
XIN 11
D GND 12
13 INITB
14 EMP
15 FS1
16 FS2
17 CLSL1
18 CKSL2
19 VREF
20 REFR
21 CH2 OUT
22 A GND
23 CH1OUT
24 AVDD

2. Block Diaglam


MUTE
D/N
BCLK
LRCK
INITB
EMP
FS1
FS2
CKSL1
CKSL2
Timing Control & Test
XIN
XOUT
CKOUT
Clock Generator
Coefficient ROM & Soft Mute
MPY & Adder
Sipo Register
DATA
RAM1
RAM2
DAC
VREFH
REFH
VREFL
REFL
CH1OUT
CH2 OUT

3. Pin Functions

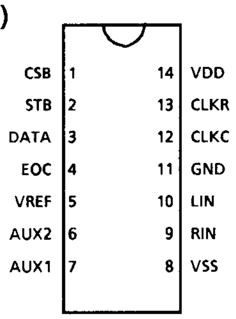
Pin No.	Symbol	I/O	Functions
1	REFH	I	Reference voltage terminal
2	VREFH	I	Reference voltage terminal
3	MUTE	I	Mute sigmal input
4	D/N	--	Connected to ground
5	BCLK	I	Bit clock input
6	DATA	I	Digital audio data input
7	LRCK	I	LR clock input (H : CH1, L : CH2)
8	DVDD	--	Power supply for the digital section
9	CKOUT	--	Connected to ground
10	XOUT	--	Connected to ground
11	XIN	I	Oscillation terminal
12	DGND	--	Digital ground
13	INITB	I	Internal circuit is initialized by this signal
14	EMP	--	Connected to ground
15	FS1	--	Connected to ground
16	FS2	--	Connected to +5V
17, 18	CKSL1, CKSL2	--	Connected to +5V
19	VREFL	--	Connected to ground
20	REFL	I	Reference voltage terminal
21	CH2 OUT	O	Analog output terminal
22	AGND	--	Analog ground
23	CH1 OUT	O	Analog output terminal
24	AVDD	--	Power supply for the Analog section

■ XR1097CP (IC251) : 7-Channel Graphic Equalizer Filter With A/D Converter

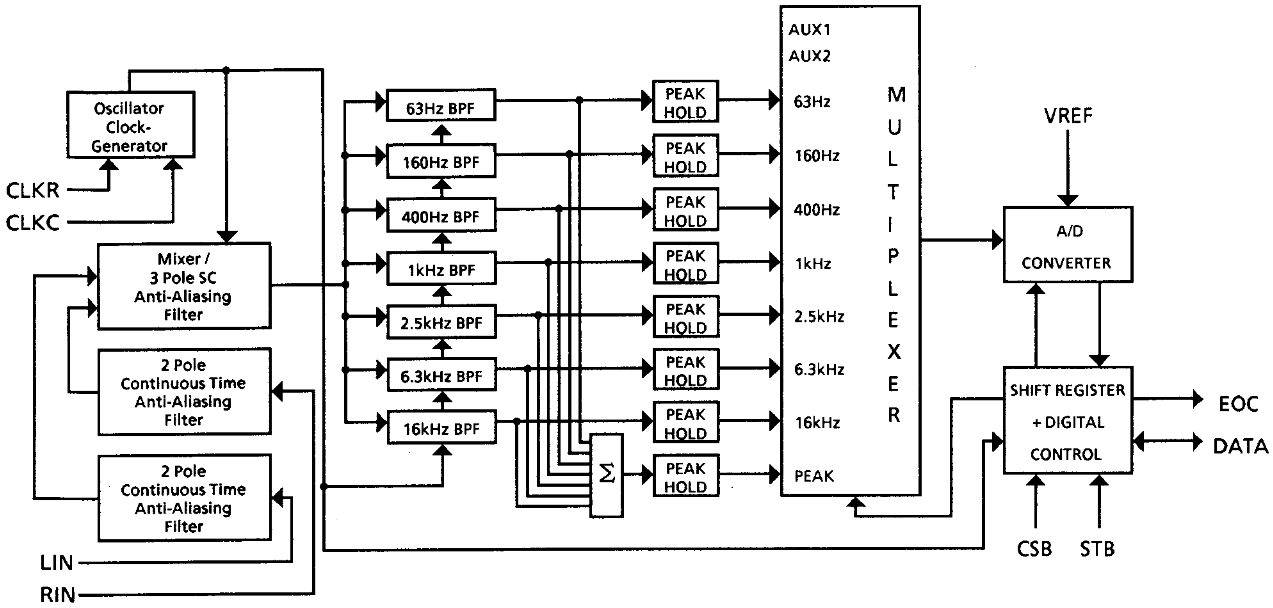
1. The main function descriptions

(1) Internal R/C Oscillator
(2) Provides seven fillters in one 14-pin package
(3) Dual inputs for summing Left and Right Channels
(4) Provides 30dB of Gain
(5) Two auxilialy inputs
(6) Microprocessor Bus interface
(7) On Chip A/D Converter

2. Terminal Layout
(Top View)


CSB 1
STB 2
DATA 3
EOC 4
VREF 5
AUX2 6
AUX1 7
14 VDD
13 CLKR
12 CLKC
11 GND
10 LIN
9 RIN
8 VSS

3. Block Diagram

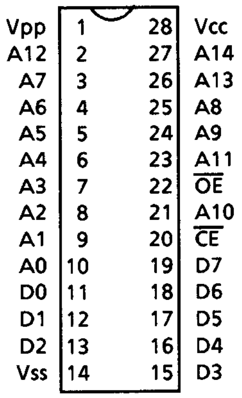

Oscillator Clock-Generator
CLKR
CLKC
Mixer / 3 Pole SC Anti-Aliasing Filter
2 Pole Continuous Time Anti-Aliasing Filter
2 Pole Continuous Time Anti-Aliasing Filter
LIN
RIN
63Hz BPF
160Hz BPF
400Hz BPF
1kHz BPF
2.5kHz BPF
6.3kHz BPF
16kHz BPF
Σ
PEAK HOLD
AUX1
AUX2
63Hz
160Hz
400Hz
1kHz
2.5kHz
6.3kHz
16kHz
PEAK
MULTIPLEXER
VREF
A/D CONVERTER
SHIFT REGISTER + DIGITAL CONTROL
EOC
DATA
CSB
STB

4. Pin Functions

Pin No.	Symbol	I/O	Functions
1	CSB	I	Chip select pin
2	STB	I	Clock pin to shift in/out data through the serial port.
3	DATA	I	Serial port for digital signals to and from microprocessor.
4	EOC	O	End of conversion pin.
5	VREF	I	A/D Converter reference voltage input.
6	AUX2	I	Auxiliary input 2.
7	AUX1	I	Auxiliary input 1.
8	VSS	--	Negative supply voltage. (−5.7V)
9	RIN	I	Right channel input.
10	LIN	I	Left channel input.
11	GND	--	Ground
12	CLKC	I	Clock capasitor from this pin to GND.
13	CLKR	I	Clock resistor from this pin to CLKC.
14	VDD	--	Positive supply voltage. (+5.6V)

■ LH5359MK (IC610) : ROM

1. Terminal Layout



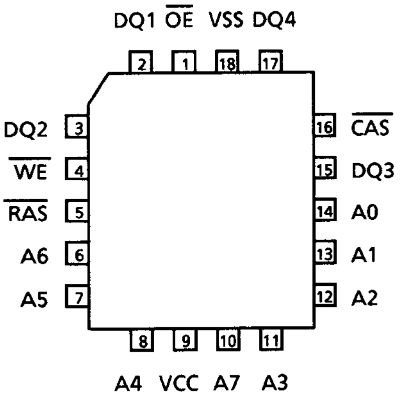
Vpp 1 28 Vcc
A12 2 27 A14
A7 3 26 A13
A6 4 25 A8
A5 5 24 A9
A4 6 23 A11
A3 7 22 $\overline{OE}$
A2 8 21 A10
A1 9 20 $\overline{CE}$
A0 10 19 D7
D0 11 18 D6
D1 12 17 D5
D2 13 16 D4
Vss 14 15 D3

2. Pin Functions

Symbol	Functions
A0~A14	Address inputs
O0~O7	Data outputs
$\overline{CE}$	Chip enable
$\overline{OE}$	Output enable
Vpp	Program power supply
Vcc	Power supply (+5V)
GND	GND (0V)

■ MN41464AJ-08W (IC606,607) : RAM

1. Terminal Layout



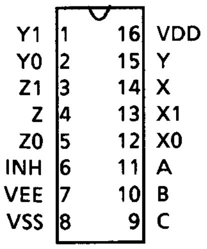
DQ1 $\overline{OE}$ VSS DQ4
2 1 18 17
DQ2 3
$\overline{WE}$ 4
$\overline{RAS}$ 5
A6 6
A5 7
16 $\overline{CAS}$
15 DQ3
14 A0
13 A1
12 A2
8 9 10 11
A4 VCC A7 A3

2. Pin Functions

Symbol	Functions
A0~A7	Address inputs
$\overline{RAS}$	Row Address Strobe
$\overline{CAS}$	Column Address Strobe
$\overline{WE}$	Write enable
$\overline{OE}$	Output enable
DQ 1~DQ 4	Data input/output
Vcc	Power supply (+5V)
Vss	GND (0V)

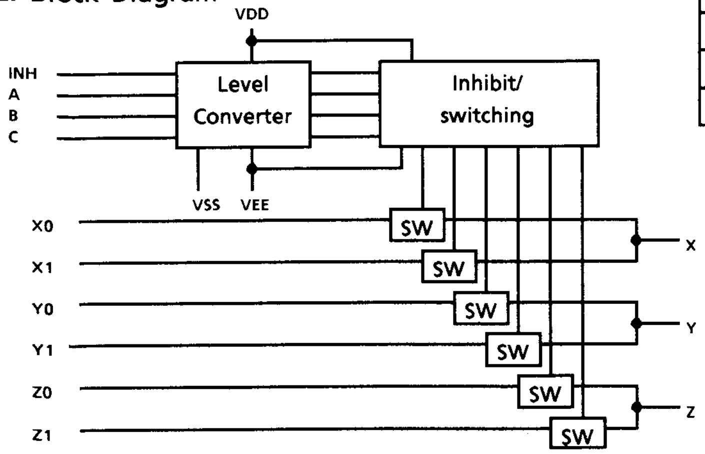
■ μPD4053BC (IC111) : 2CH -Multiplexer

1. Terminal Layout



Y1 1 16 VDD
Y0 2 15 Y
Z1 3 14 X
Z 4 13 X1
Z0 5 12 X0
INH 6 11 A
VEE 7 10 B
VSS 8 9 C

2. Block Diagram



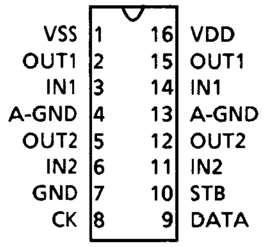
VDD
INH
A
B
C
Level Converter
Inhibit/ switching
VSS
VEE
X0
X1
Y0
Y1
Z0
Z1
SW
SW
SW
SW
SW
SW
X
Y
Z

3. Function Table

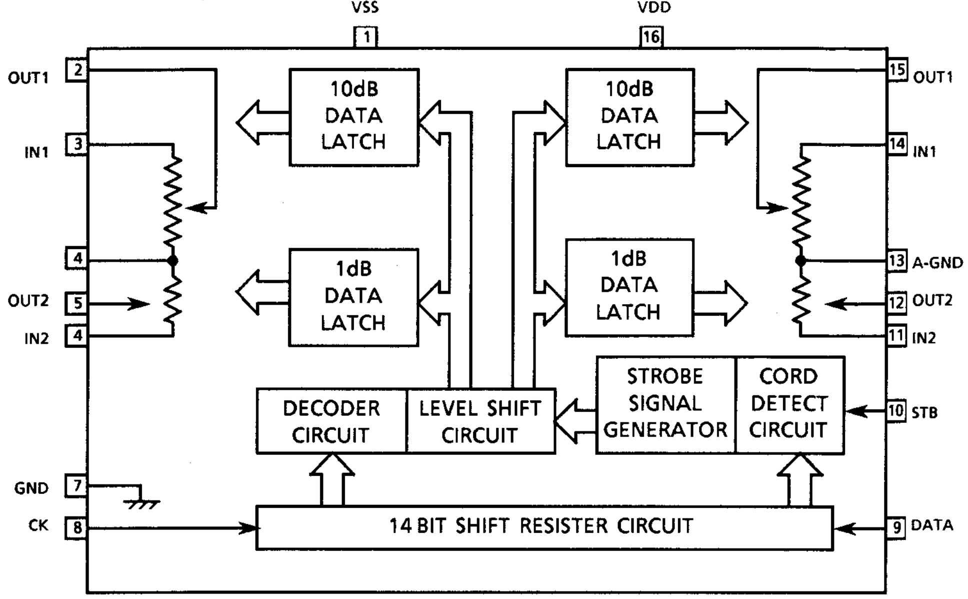
Control input				ON channel
INH	C	B	A	
L	L	L	L	Z0, Y0, X0
L	L	L	H	Z0, Y0, X1
L	L	H	L	Z0, Y1, X0
L	L	H	H	Z0, Y1, X1
L	H	L	L	Z1, Y0, X0
L	H	L	H	Z1, Y0, X1
L	H	H	L	Z1, Y1, X0
L	H	H	H	Z1, Y1, X1
H	×	×	×	NONE

■ TC9213P (IC201) : Volume Controller

1. Terminal Layout

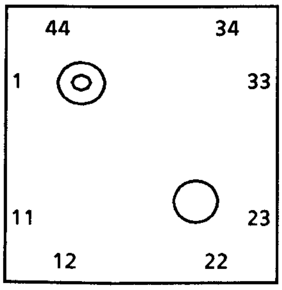

VSS 1
OUT1 2
IN1 3
A-GND 4
OUT2 5
IN2 6
GND 7
CK 8
16 VDD
15 OUT1
14 IN1
13 A-GND
12 OUT2
11 IN2
10 STB
9 DATA

2. Block Diagram


VSS
1
VDD
16
OUT1 2
IN1 3
4
OUT2 5
IN2 4
GND 7
CK 8
10dB DATA LATCH
10dB DATA LATCH
1dB DATA LATCH
1dB DATA LATCH
DECODER CIRCUIT
LEVEL SHIFT CIRCUIT
STROBE SIGNAL GENERATOR
CORD DETECT CIRCUIT
14 BIT SHIFT RESISTER CIRCUIT
15 OUT1
14 IN1
13 A-GND
12 OUT2
11 IN2
10 STB
9 DATA

■ MSC7112-01GS-V1K (IC305) : Flourescent Dispaly Driver

1. Terminal Layout

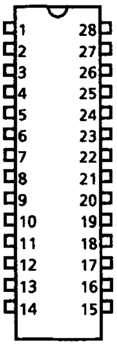

44
34
1
33
11
23
12
22

2. Pin Functions

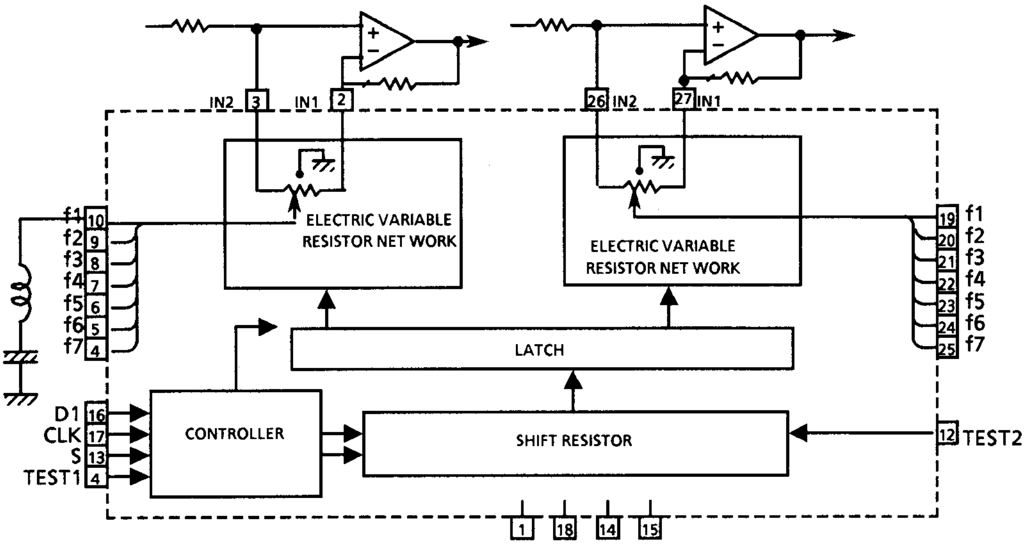
Pin No.	Pin Name	I/O	Functions
33~38,40~44,1	D1~D12	O	FL display tube drive signal.
2	AI	O	LED output
3	F.DSP	O	LED output
4	SEA	O	LED output
5	DSP	O	LED output
6	4ch DSP	O	LED output
7	VSS	–	GND
8,17,39	VEE	–	Power supply for the FL driver circuit (-30V)
9~16, 18~25	SEG A~O	O	FL display tube drive signal
26	SCLK	I	Clock signal to the shift register
27	DATA IN	I	Displa data to the sshift register
28	LOAD	I	Clock signal for the display data
29 30	OSC I OSC O	I O	Input to the oscillator circuit. Oscillator circuit is made up by connecting an external capacitor and resistor
31	POR	I	Reset signal input to the internal logic circuit when turning on
32	VDD	–	Power supply

■ LC7522 (IC141) : Variable Resistor for SEA Control

1. Terminal Layout


1
2
3
4
5
6
7
8
9
10
11
12
13
14
28
27
26
25
24
23
22
21
20
19
18
17
16
15

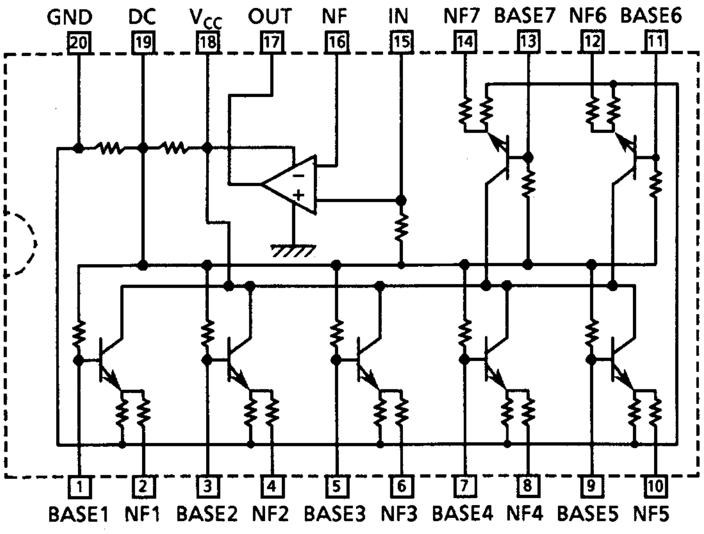
2. Block Diagram


IN2 3
IN1 2
26 IN2
27 IN1
ELECTRIC VARIABLE RESISTOR NET WORK
ELECTRIC VARIABLE RESISTOR NET WORK
f1 10
f2 9
f3 8
f4 7
f5 6
f6 5
f7 4
19 f1
20 f2
21 f3
22 f4
23 f5
24 f6
25 f7
LATCH
D1 16
CLK 17
S 13
TEST1 4
CONTROLLER
SHIFT RESISTOR
12 TEST2
1
18
14
15

3. Pin Funtions

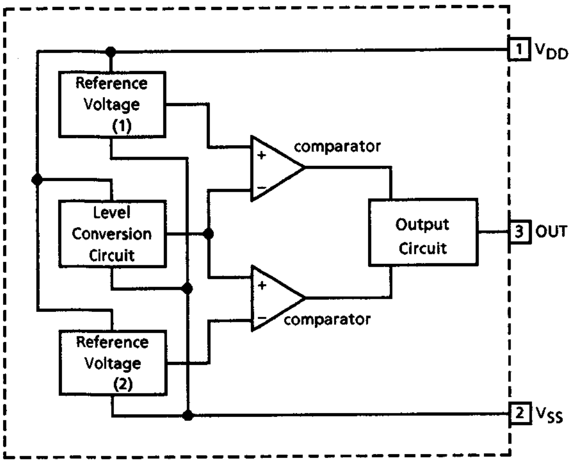
Pin No.	Symbol	Functions
1 18 14 15	V_{DD} VSS VEE VCC	Power supply +7V for audio signal Ground. Power supply −7V for audio signal. Power supply +5V
2,27 3, 26	IN 1 IN 2	Audio signal input The inversion signal of the operational amplifier inputs to IN 1 normally. The non-inversion signal of the operational amplifier inputs to IN 2 normally.
16	SDA	Data input from the CPU. Schmitt inverter type
17	SCK	Clock signal input from the CPU. Schmitt inverter type
4~10 19~25	f1~f7	For connecting to band-pass filter. f1~f7x2 (Left and Right)
11 12	TEST 1 TEST 2	Not used Not used
13	S	Chip Select
28	NC	Not used

■ LA3607S (IC151,152) : S.E.A. Graphic Equalizer It makes inductive characteristic instead of coil.


GND
DC
V_{CC}
OUT
NF
IN
NF7
BASE7
NF6
BASE6
20
19
18
17
16
15
14
13
12
11
1
2
3
4
5
6
7
8
9
10
BASE1
NF1
BASE2
NF2
BASE3
NF3
BASE4
NF4
BASE5
NF5

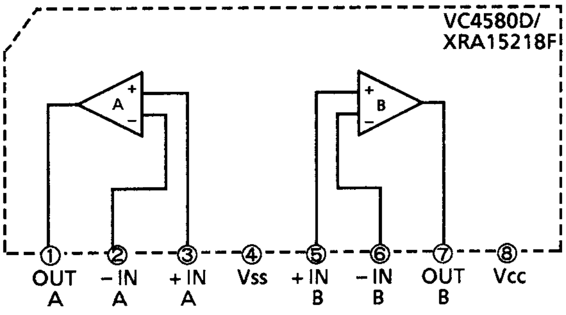
■ MN1281 (P.Q). : IC341 (Reset IC)

Block Diagram

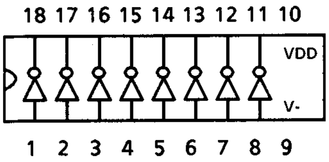

Reference Voltage (1)
Level Conversion Circuit
Reference Voltage (2)
comparator
comparator
Output Circuit
1 VDD
3 OUT
2 VSS

Pin No.	Symbol	Functions
1	V_{DD}	Power supply
2	V_{SS}	Ground
3	OUT	Reset signal output : Low level is output when resetting : High level is output when cancelling the reset.

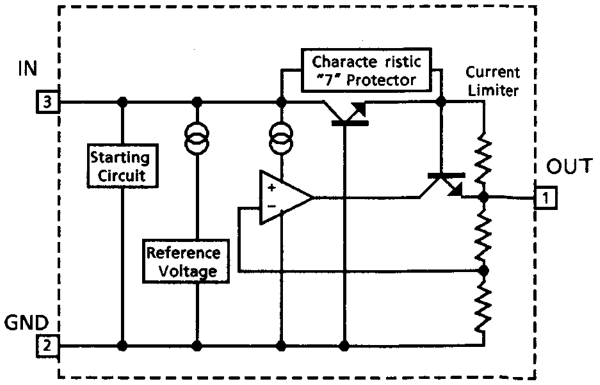
■ VC4580D / XRA15218F (IC101,121,191,202,221,601,602,603) : Dual OP Amp.


VC4580D/
XRA15218F
A
B
① OUT A
② −IN A
③ +IN A
④ Vss
⑤ +IN B
⑥ −IN B
⑦ OUT B
⑧ Vcc

■ AN6873S (IC303,304) : Inverter for FL drive


18 17 16 15 14 13 12 11 10
VDD
V-
1 2 3 4 5 6 7 8 9

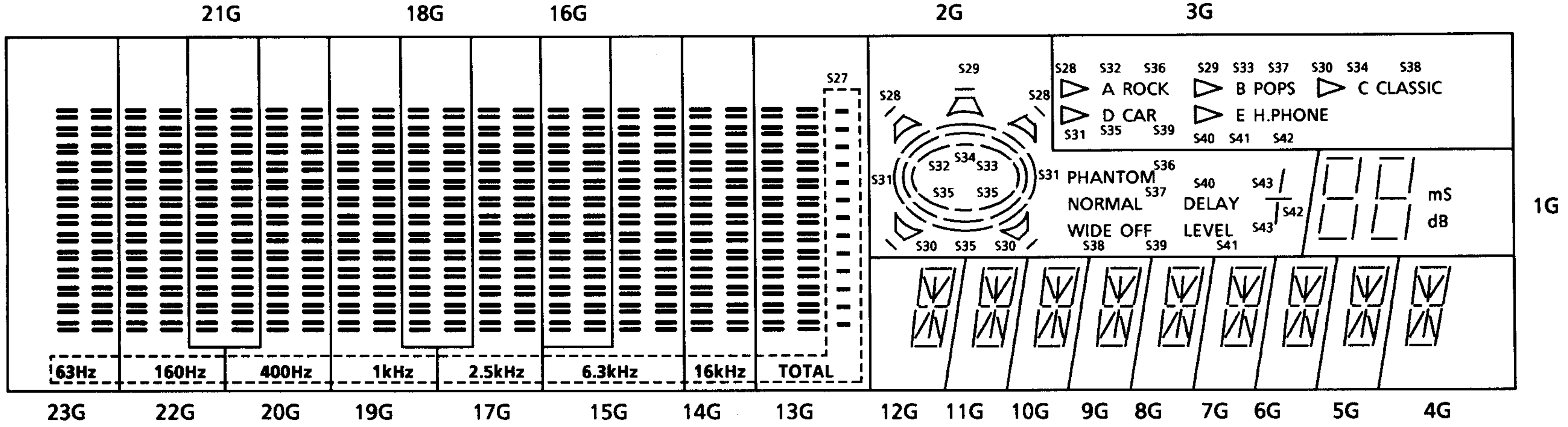
■ NJM78M05FD / NJM78L05UA (IC281,651,652,653) : Regulator

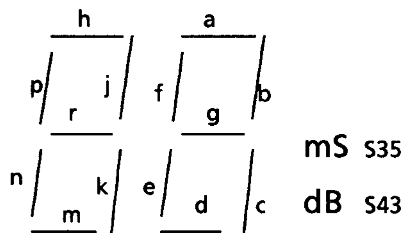

IN
3
GND
2
Characte ristic "7" Protector
Current Limiter
Starting Circuit
Reference Voltage
OUT
1

Internal Wiring of FL Display

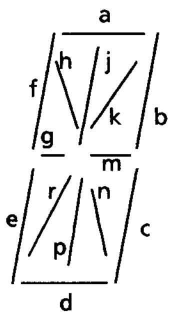
■ ELU-0001-141 (FL901)

Terminal Layout

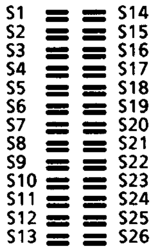

21G
18G
16G
2G
3G
1G
S27
S28
S29
S28
S31
S32
S34
S33
S35
S35
S31
S30
S35
S30
S28 S32 S36 ▷ A ROCK
S29 S33 S37 ▷ B POPS
S30 S34 S38 ▷ C CLASSIC
▷ D CAR S31 S35 S39
▷ E H.PHONE S40 S41 S42
PHANTOM S36
NORMAL S37
WIDE OFF S38 S39
S40 DELAY
LEVEL S41
S43
S42
S43
mS
dB
63Hz
160Hz
400Hz
1kHz
2.5kHz
6.3kHz
16kHz
TOTAL
23G
22G
20G
19G
17G
15G
14G
13G
12G
11G
10G
9G
8G
7G
6G
5G
4G


h
a
p
j
r
f
g
b
n
k
m
e
d
c
mS S35
dB S43

(1G)


a
f
h
j
k
b
g
m
e
r
n
p
c
d

(4G~12G)


S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
S15
S16
S17
S18
S19
S20
S21
S22
S23
S24
S25
S26

(13G~23G)

Pin Connection

	S28	S29	S30	S31	S32	S33	S34	S35
12G~4G	a	b	c	d	e	f	g	h
1G	a	b	c	d	e	f	g	mS
	S36	S37	S38	S39	S40	S41	S42	S43
12G~4G	j	k	m	n	p	r	–	–
1G	h	j	k	m	n	p	r	dB

Pin Connection

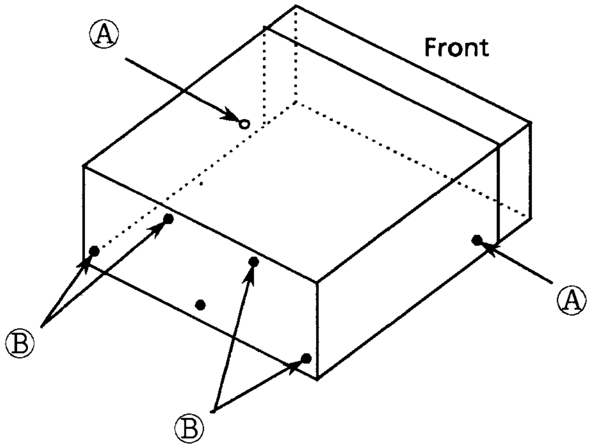
Terminal No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Electrede	F1	F1	F1	NP	NP	23G	22G	21G	20G	19G	18G	17G	16G	15G	14G	13G	NP	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14
Terminal No.	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62
Electrede	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	NP	NP	12G	11G	10G	IC	IC	IC	9G	8G	7G	6G	5G	4G	3G	2G	1G	P28
Terminal No.	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82											
Electrede	P29	P30	P31	P32	P33	P34	P35	P36	P37	P38	P39	P40	P41	P42	P43	NP	NP	F2	F2	F2											

F : Filament G : Grid P : Anode NP : No Pin IC : Internally Connected Pin

Disassembly Procedures

■ Removing the metal cover

1. Remove the 2 screws Ⓐ fastening the both sides of the metal cover and 4 screws Ⓑ fixing the back of the cover to remove the cover.



■ Removing the front panel assembly

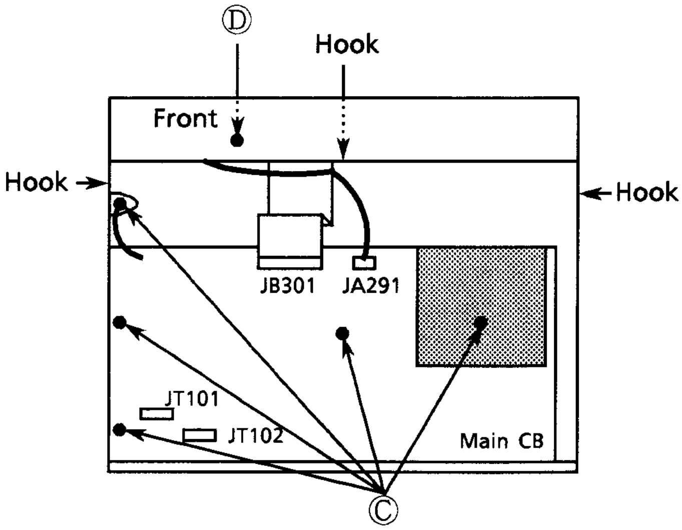
1. Remove the metal cover.
2. Remove the screw Ⓓ and release the 3 hooks to remove the assembly.
   (If necessary, disconnect the connectors.)

■ Removing the DSP circuit board

1. Removing the 3 fasteners to remove the circuit board. (If necessary, disconnect the connector.)

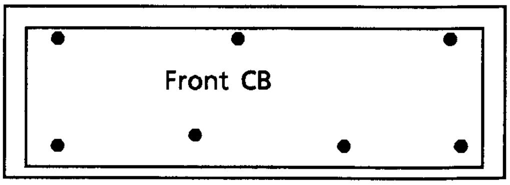
■ Removing the main circuit board

1. Disconnect the connectors JT101, JT102, JA291 and JB301.
2. Remove the 5 screws Ⓒ to remove the circuit board.



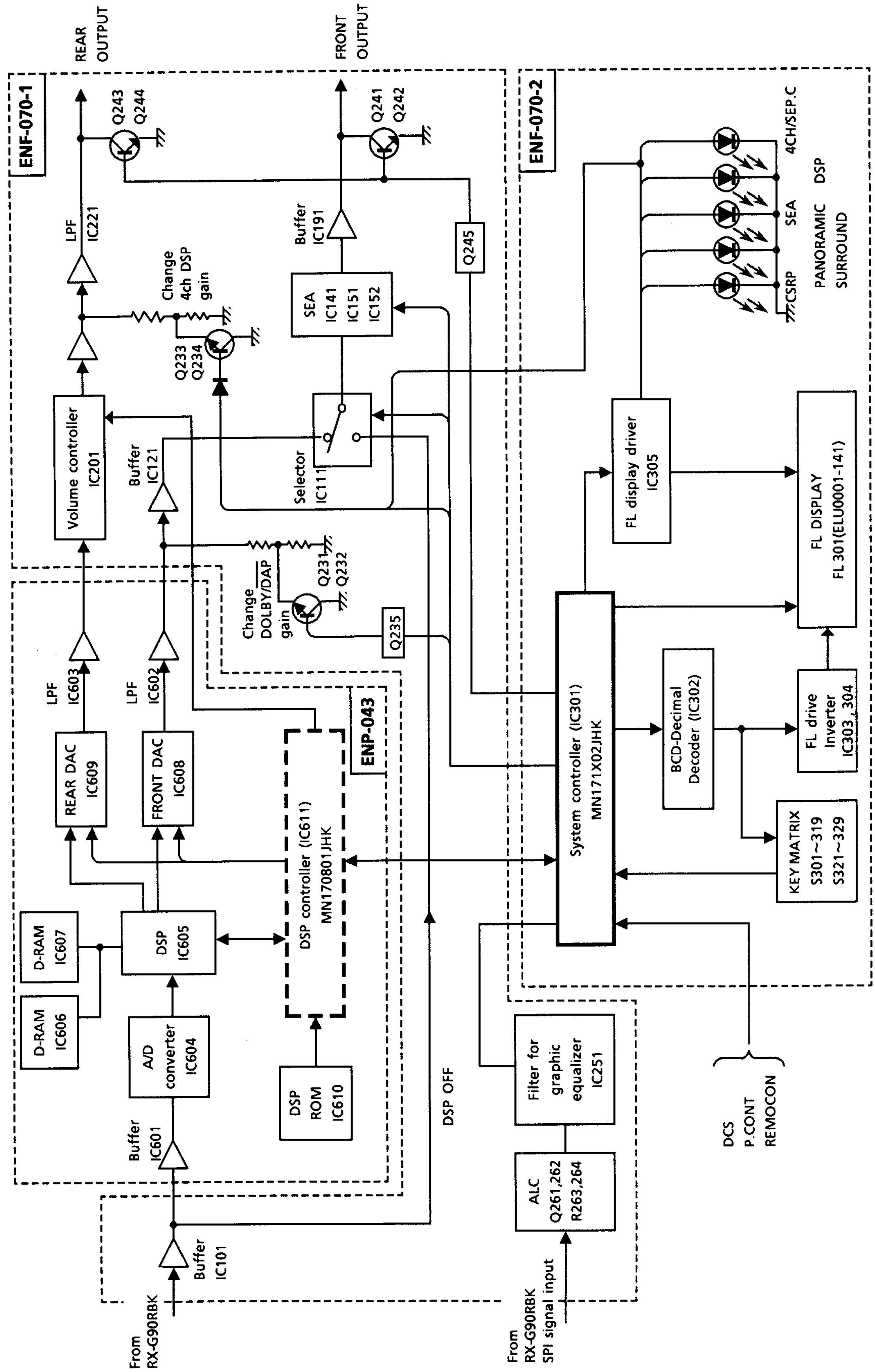
■ Removing the front circuit board

1. Remove the front panel assembly.
2. Remove the 7 screws fixng the circuit board to remove the circuit board.



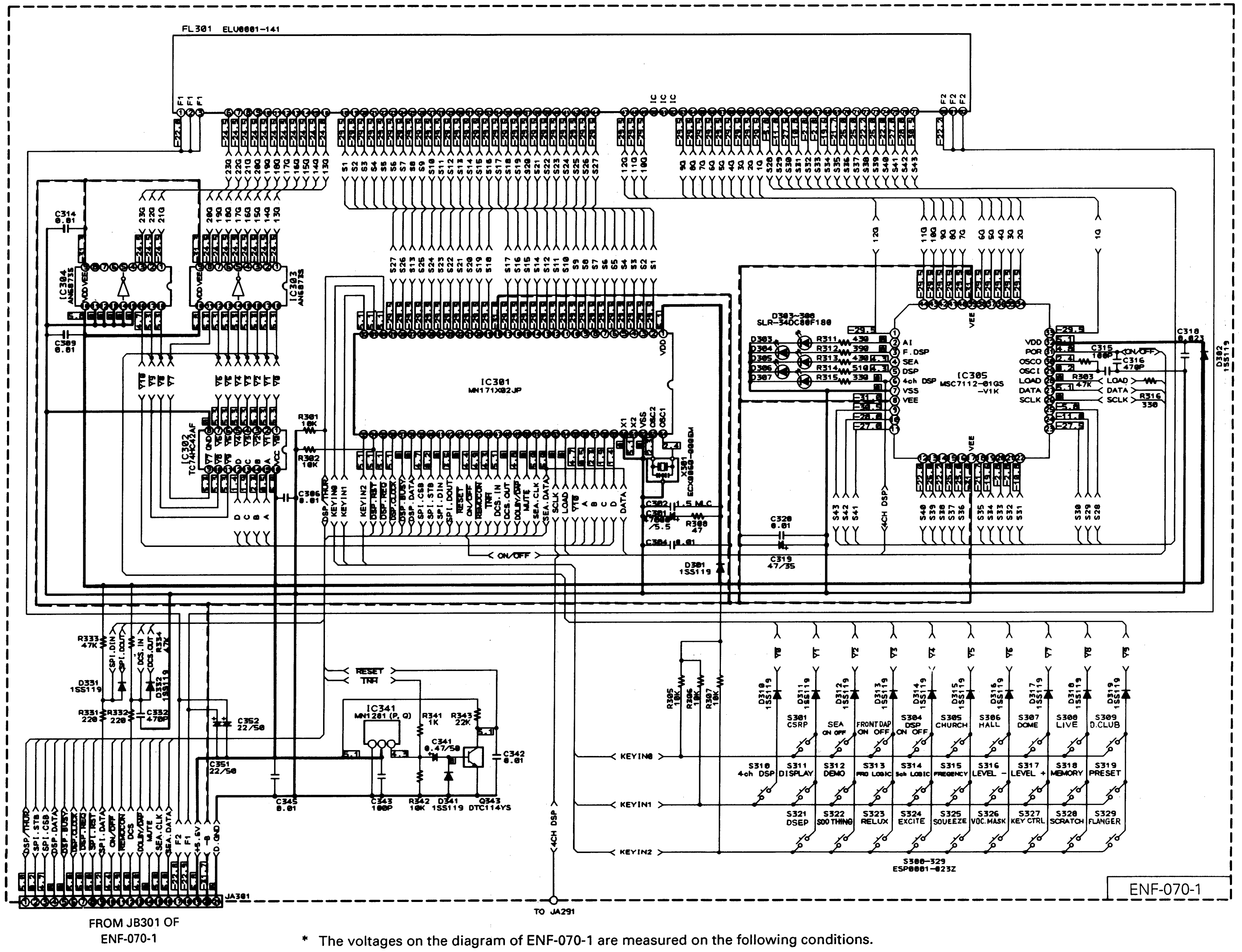
Front panel assembly

Block Diagram


REAR OUTPUT
FRONT OUTPUT
ENF-070-1
ENF-070-2
ENP-043
Q243
Q244
Q241
Q242
LPF
IC221
Buffer
IC191
Q245
Change
4ch DSP
gain
Q233
Q234
SEA
IC141
IC151
IC152
4CH/SEP.C
DSP
SEA
PANORAMIC
SURROUND
CSRP
Volume controller
IC201
Buffer
IC121
Selector
IC111
FL display driver
IC305
FL DISPLAY
FL 301(ELU0001-141)
Change
DOLBY/DAP
gain
Q231
Q232
Q235
LPF
IC603
LPF
IC602
REAR DAC
IC609
FRONT DAC
IC608
DSP controller (IC611)
MN170801JHK
System controller (IC301)
MN171X02JHK
BCD-Decimal
Decoder (IC302)
FL drive
Inverter
IC303, 304
KEY MATRIX
S301~319
S321~329
D-RAM
IC607
D-RAM
IC606
DSP
IC605
A/D
converter
IC604
DSP
ROM
IC610
DSP OFF
Filter for
graphic
equalizer
IC251
ALC
Q261,262
R263,264
DCS
P.CONT
REMOCON
Buffer
IC601
Buffer
IC101
From
RX-G90RBK
From
RX-G90RBK
SPI signal input

Schematic Diagrams

(1) Front Section


FL301 ELU0001-141
IC301 MN171X02JP
IC302 TC74HC32AF
IC303
IC304
IC305 MSC7112-01GS-V1K
D303-309 SLR-34DC00F180
IC341 MN1281 (P, Q)
X301
D301 1SS119
D331 1SS119
D332 1SS119
Q343 DTC114YS
ON/OFF
RESET
TNR
KEYIN0
KEYIN1
KEYIN2
4CH DSP
S301 CSRP
SEA ON OFF
FRONT DAP ON OFF
S304 DSP ON OFF
S305 CHURCH
S306 HALL
S307 DOME
S308 LIVE
S309 D.CLUB
S310 4ch DSP
S311 DISPLAY
S312 DEMO
S313 PRO LOGIC
S314 3ch LOGIC
S315 FREQUENCY
S316 LEVEL -
S317 LEVEL +
S318 MEMORY
S319 PRESET
S321 DSEP
S322 SMOOTHING
S323 RELUX
S324 EXCITE
S325 SQUEEZE
S326 VOC.MASK
S327 KEY CTRL
S328 SCRATCH
S329 FLANGER
S300-329 ESP0001-023Z
ENF-070-1
JA301
TO JA291

FROM JB301 OF
ENF-070-1

* The voltages on the diagram of ENF-070-1 are measured on the following conditions.

DSP ON : DOLBY PRO LOGIC CENTER MODE NORMAL

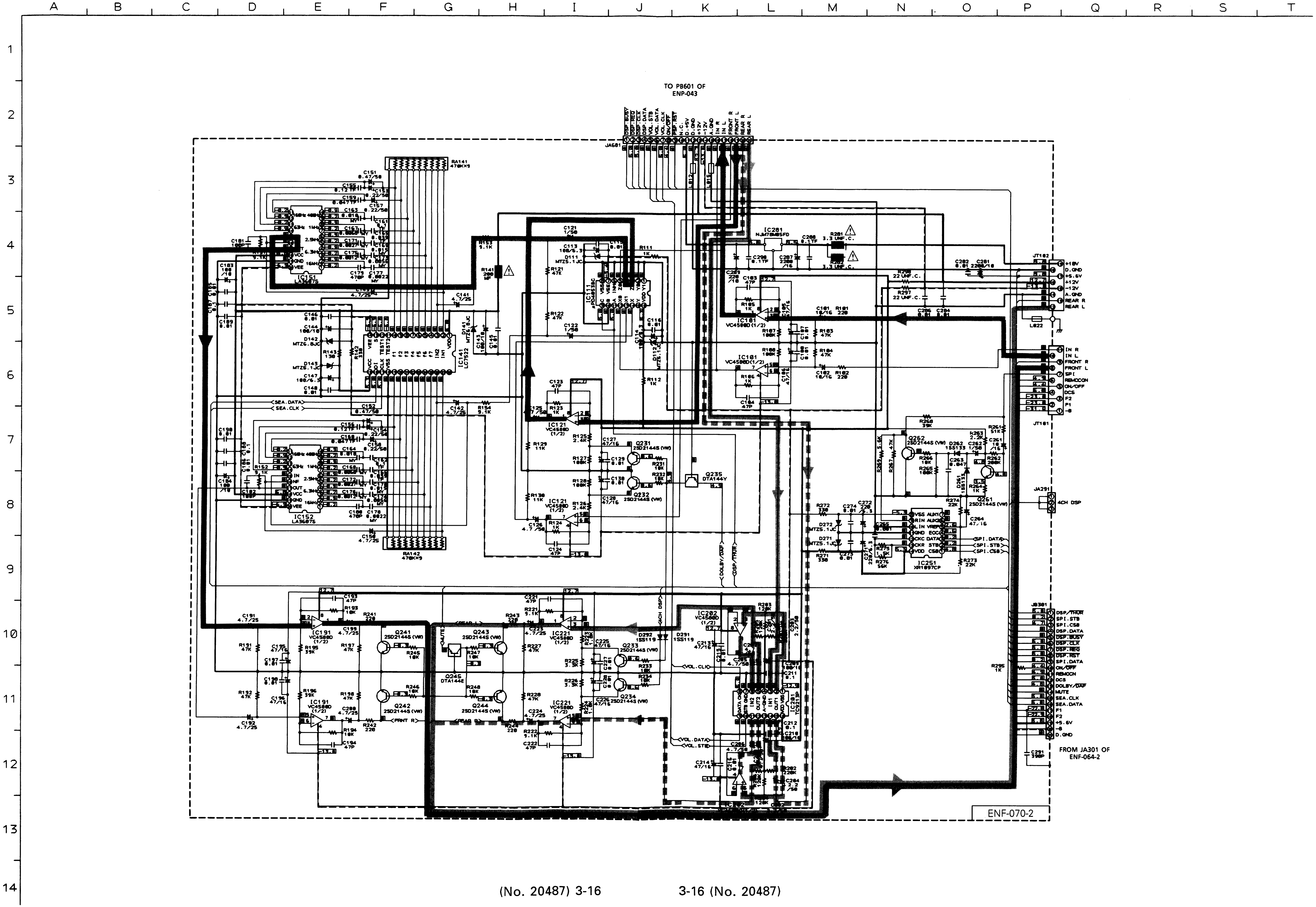
SEA ON : FLAT

The other ones are measured on the conditions of DSP and SEA off.

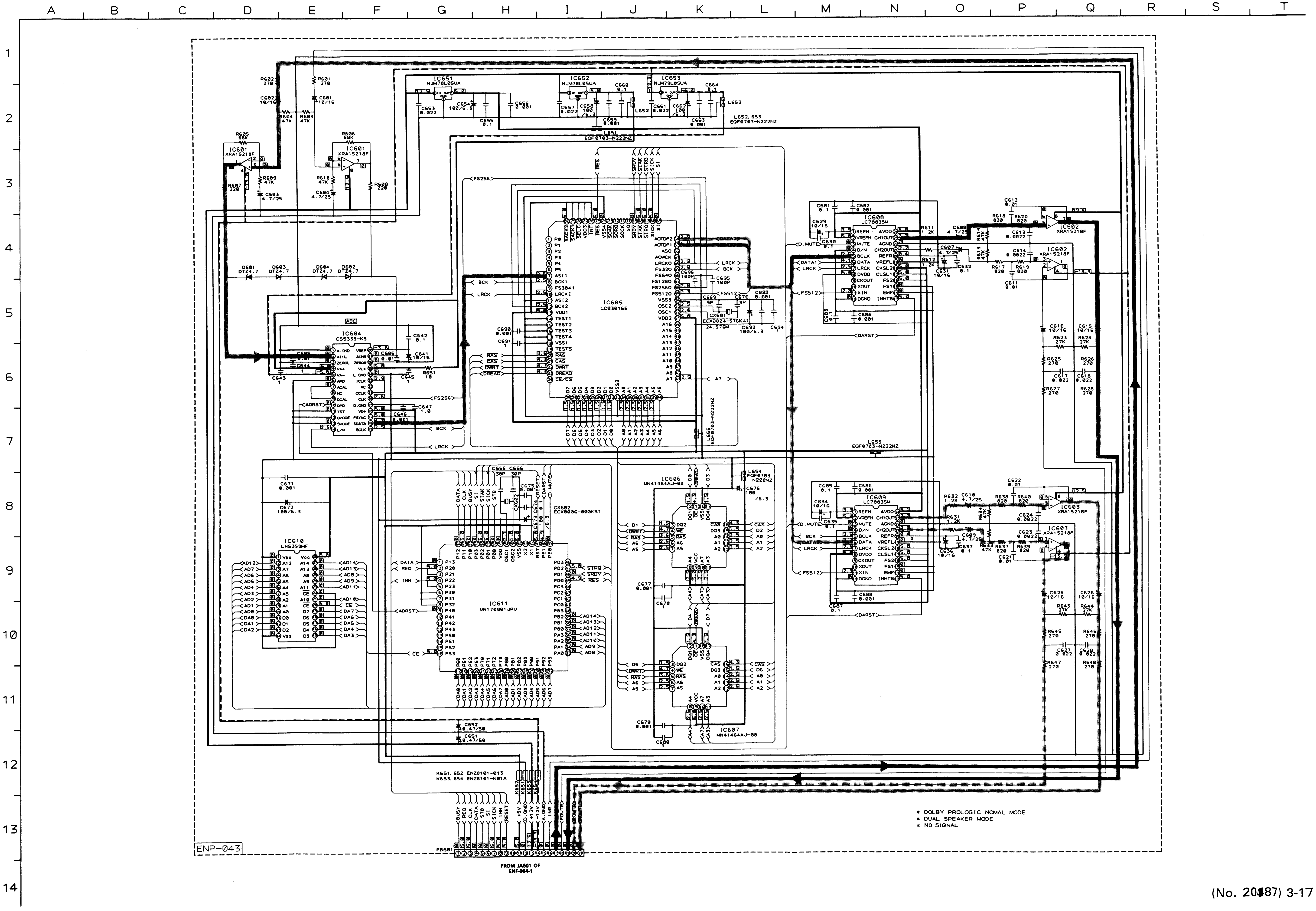
Notes:

1. ——— indicates + B power supply.
2. - - - - indicates – B power supply.
3. ▇▇ indicates main signal path.
4. ▒▒ indicates left signal path for front or rear surround and center signal path for dolby pro-logic.
5. ▨▨ indicates right signal path for front or rear surround and surround signal path for dolby pro-logic.
6. When replacing the parts in the shaded are (▇▇) and those marked with ⚠ , be sure to use the designated parts to ensure safety.
7. The design and contents are subject to change without notice.

(2) Input/Output Section


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
1
2
3
4
5
6
7
8
9
10
11
12
13
14
TO PB601 OF
ENP-043
JA601
DSP.BUSY
DSP.REQ
DSP.CLK
DSP.DATA
VOL.STB
VOL.DATA
VOL.CLK
ON/OFF
PSP.RST
N.C.
D.+5V
D.GND
+12V
−12V
A.GND
IN R
IN L
FRONT R
FRONT L
REAR R
REAR L
L012
L015
RA141
470K×9
RA142
470K×9
IC151
LA3607S
IC152
LA3607S
IC141
LC7522
IC111
IC281
NJM78M05FD
R281
3.3 UNF.C.
IC101
VC4558D(1/2)
IC121
VC4558D
(1/2)
Q231
2SD2144S (VW)
Q232
2SD2144S (VW)
Q235
DTA144Y
IC251
XR1097CP
Q261
2SD2144S (VW)
Q262
2SD2144S (VW)
JA291
4CH DSP
JT102
+10V
D.GND
+5.6V
+12V
−12V
A.GND
REAR R
REAR L
L022
JT101
IN R
IN L
FRONT R
FRONT L
SPI
REMOCON
ON/OFF
DCS
F2
F1
−B
SEA.DATA
SEA.CLK
DOLBY/DAP
DSP/THUR
SPI.DATA
SPI.STB
SPI.CSB
IC191
VC4558D
(1/2)
Q241
2SD2144S (VW)
Q242
2SD2144S (VW)
Q243
2SD2144S (VW)
Q244
2SD2144S (VW)
Q245
DTA144E
IC221
VC4558D
(1/2)
Q233
2SD2144S (VW)
Q234
2SD2144S (VW)
IC202
VC4558D
(1/2)
D291
1SS119
D292
1SS119
IC201
TC9210P
VOL.CLK
VOL.DATA
VOL.STB
REAR L
REAR R
FRNT R
JB301
DSP/THUR
SPI.STB
SPI.CSB
DSP.DATA
DSP.BUSY
DSP.CLK
DSP.REQ
DSP.RST
SPI.DATA
ON/OFF
REMOCN
DCS
DOLBY/DAP
MUTE
SEA.CLK
SEA.DATA
F1
F2
+5.6V
−B
D.GND
R295
1K
C291
390P
FROM JA301 OF
ENF-064-2
ENF-070-2

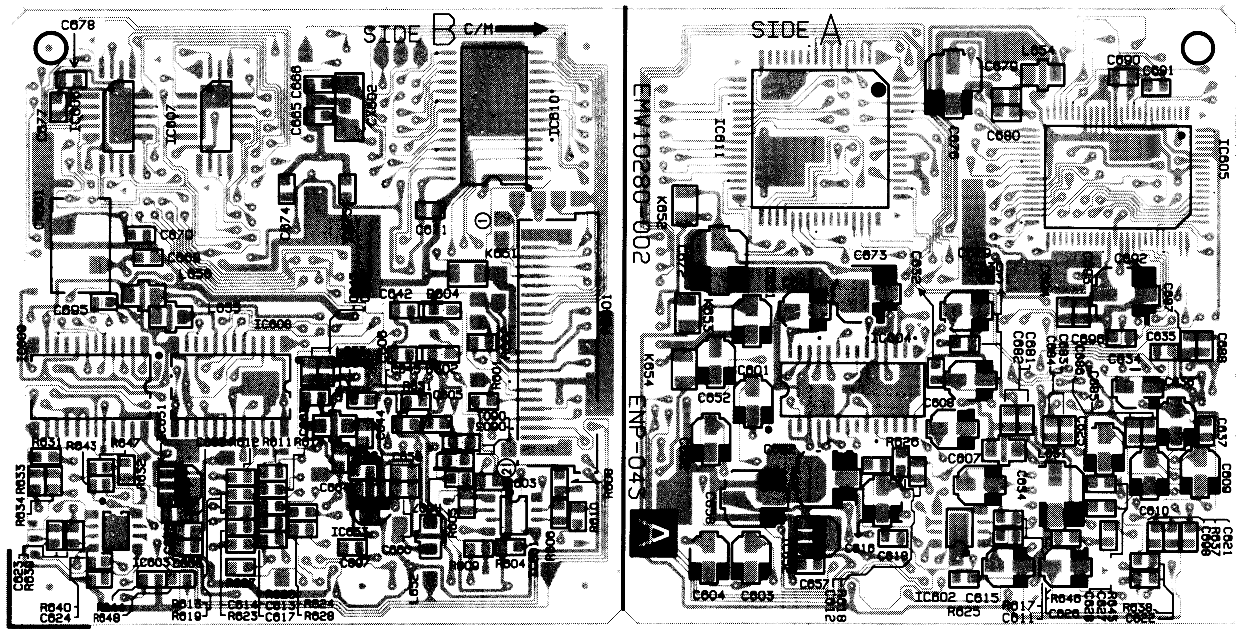
(3) Digital Signal Processor Section

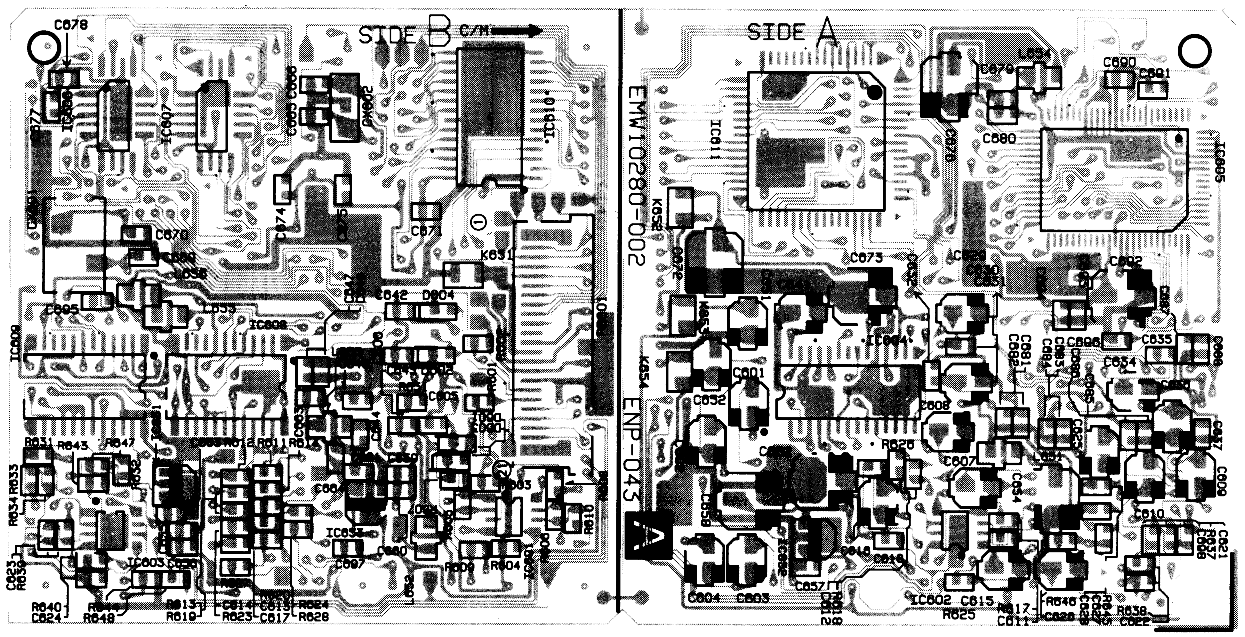

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
1
2
3
4
5
6
7
8
9
10
11
12
13
14
IC651 NJM78L05UA
IC652 NJM78L05UA
IC653 NJM79L05UA
L651 EQF0703-N222NZ
L652, 653 EQF0703-N222NZ
IC601 XRA15218F
ADC
IC604 CS5339-KS
IC605 LC83016E
CX601 ECX0024-S76KA1 24.576M
IC608 LC78835M
IC602 XRA15218F
L655 EQF0703-N222NZ
IC609 LC78835M
IC603 XRA15218F
IC610 LH5359MF
IC611 MN170801JPU
CX602 ECX0006-000KS1
IC606 MN41464AJ-08
IC607 MN41464AJ-08
L654 EQF0703-N222NZ
L656 EQF0703-N222NZ
K651, 652 ENZ8101-013
K653, 654 ENZ8101-N01A
PB601
FROM JA601 OF ENF-064-1
ENP-043

* DOLBY PROLOGIC NOMAL MODE
* DUAL SPEAKER MODE
* NO SIGNAL

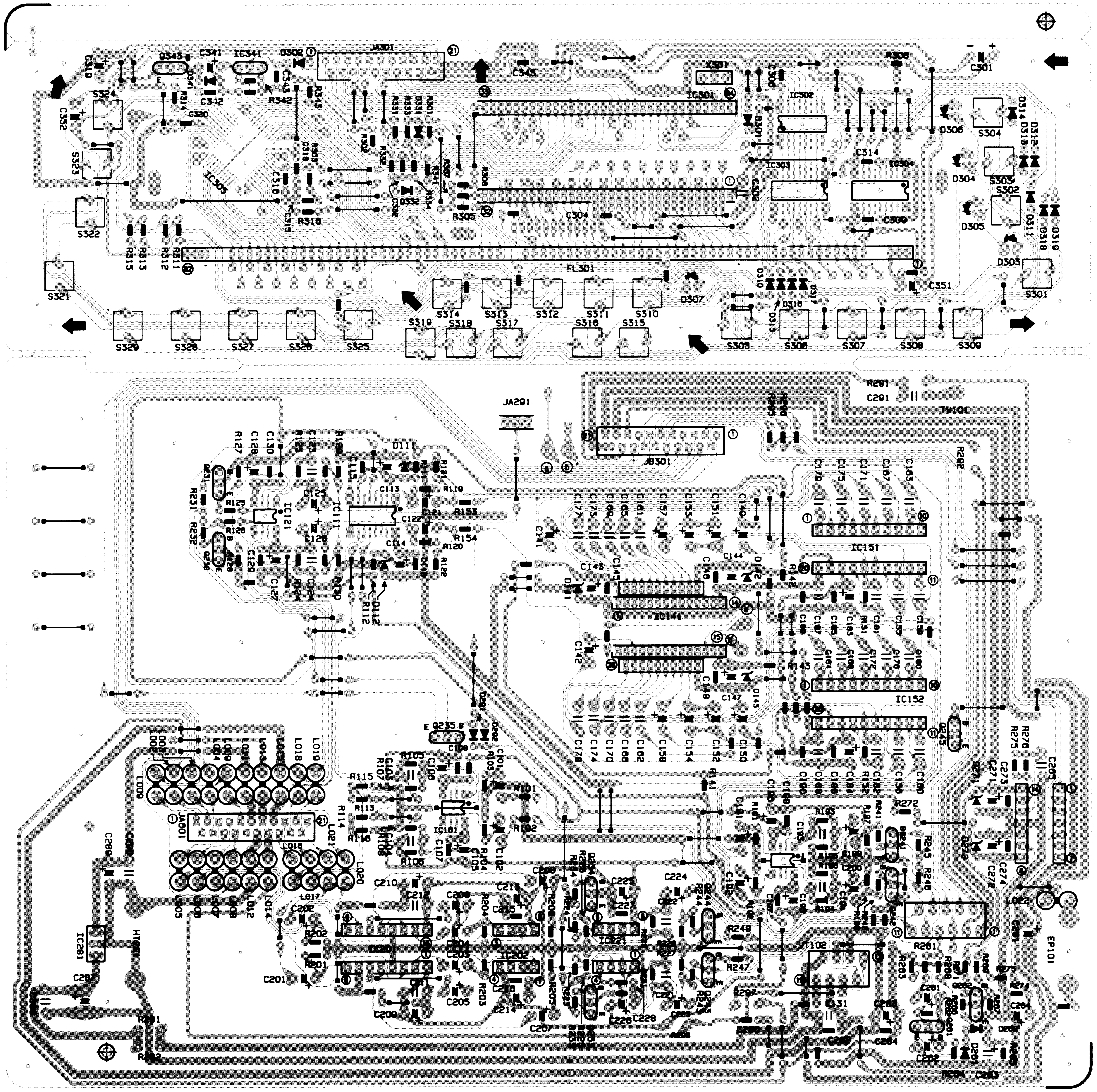
Printed Circuit Boards

(1) Digital Signal Processor P.C. Board (ENP-043)


SIDE B
C/M
SIDE A
EMW10280-002
ENP-043
IC601
IC605
IC610
IC607
IC608
IC602
IC603
C678
C673
C680
C690
C691
C641
C652
C604
C603
C615
C611
C617
C626
C624
C622
C657
R640
R648
R625
R631
R643
R647


SIDE B
C/M
SIDE A
EMW10280-002
ENP-043
IC601
IC605
IC610
IC607
IC608
IC602
IC603

(2) Front & Main P.C. Board (ENF-070)


JA301
IC301
IC302
IC303
IC304
IC305
IC341
X301
FL301
S301
S302
S303
S304
S305
S306
S307
S308
S309
S310
S311
S312
S313
S314
S315
S316
S317
S318
S319
S321
S322
S323
S324
S325
S326
S327
S328
S329
JA291
JB301
TW101
IC111
IC121
IC141
IC151
IC152
IC101
JA601
IC201
IC202
IC221
IC281
JT102
EP101
HT281
L022

XL-G90RBK

– Contents–

Discription of Major LSIs 4-2

Internal Connections of the FL Display Tube 4-8

Disassembly Procedures 4-9

Adjustment Procedures 4-11

Flow of Functional Operation Until TOC is Read 4-12

Maintenance of Laser Pickup 4-13

Replacement of Laser Pickup 4-13

Block Diagram 4-14

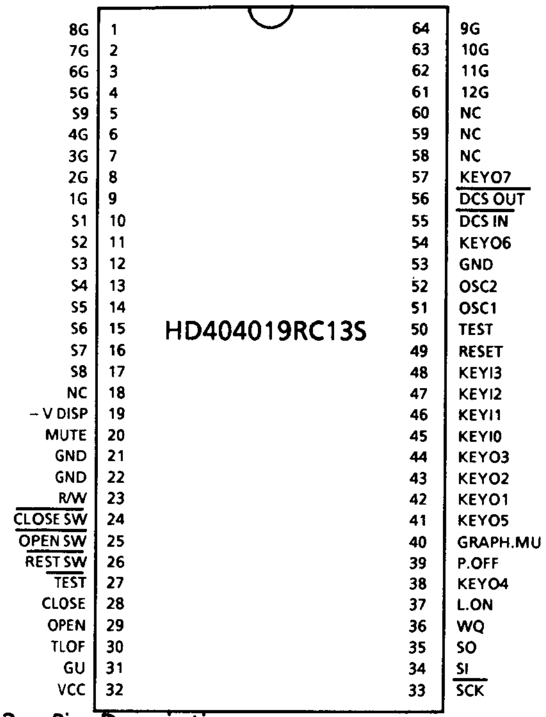
Schematic Diagrams 4-15

Printed Circuit Boards 4-16

Description of Major LSIs

■ HD404019RC13S (IC991) : Micro-computer

1. Terminal Layout


HD404019RC13S
8G 1
7G 2
6G 3
5G 4
S9 5
4G 6
3G 7
2G 8
1G 9
S1 10
S2 11
S3 12
S4 13
S5 14
S6 15
S7 16
S8 17
NC 18
-V DISP 19
MUTE 20
GND 21
GND 22
R/W 23
CLOSE SW 24
OPEN SW 25
REST SW 26
TEST 27
CLOSE 28
OPEN 29
TLOF 30
GU 31
VCC 32
64 9G
63 10G
62 11G
61 12G
60 NC
59 NC
58 NC
57 KEYO7
56 DCS OUT
55 DCS IN
54 KEYO6
53 GND
52 OSC2
51 OSC1
50 TEST
49 RESET
48 KEYI3
47 KEYI2
46 KEYI1
45 KEYI0
44 KEYO3
43 KEYO2
42 KEYO1
41 KEYO5
40 GRAPH.MU
39 P.OFF
38 KEYO4
37 L.ON
36 WQ
35 SO
34 SI
33 SCK

2. Key matrix

	KEY IN 0	KEY IN 1	KEY IN2	KEY IN3
KEY OUT 1	①	③	⑦	⑨
KEY OUT 2	④	②	⑤	
KEY OUT 3	⑩	⑥	⑧	PROGRAM
KEY OUT 4		⏮	EDIT MODE	⏭
KEY OUT 5	SIDE A/B	TIME	FADE MODE	
KEY OUT 6	REPEAT ALL / 1	RANDOM	DISPLAY	+ 10
KEY OUT 7	PLAY / PAUSE	OPEN / CLOSE	CANCEL	STOP / CLEAR

3. Pin Description

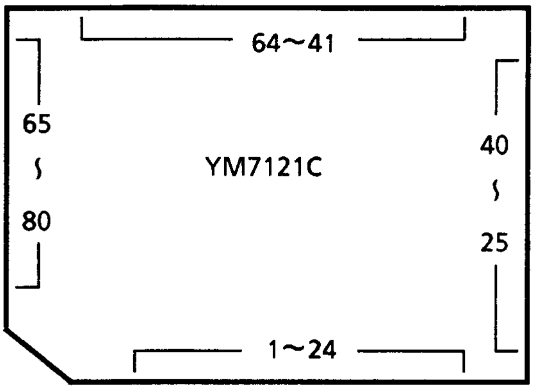
Pin No.	Symbol	I/O	Functions and Operations	Pin NO.	Symbol	I/O	Functions and Operations
1~4	8G~5G	O	FL grid control output	35	(D IN) SO	O	Serial data output for IC841
5	S9	O	FL segment control output	36	WQ	I	Write request signal input
6~9	4G~1G	O	FL grid control output	37	L.ON	O	Laser on signal output
10~17	S1~S8	O	FL segment control output	38	KEYO4	O	Key matrix output
18	NC	--	Non connection	39	P.OFF	O	Power off signal output
19	-VDISP	I	FL Power supply	40	GRAPH.MU	O	Graphic mute signal output
20	MUTE	O	Mute signal output	41	KEYO5	O	Key matrix output
21	GND	--	Ground	42~44	KEY OUT1 ~ KEY OUT3	O	Key matrix output
22	GND	I	Ground	45~48	KEY IN0 ~ KEY IN3	I	Key matrix input
23	R/W	O	Read / Write signal output	49	RESET	I	Reset signal input
24	CLOSE SW	I	Close switch : active low	50	TEST	I	Test mode input : connected to + 5V
25	OPEN SW	I	Open switch : active low	51	OSC 1	I	Clock Oscillation input
26	RESET SW	I	Reset switch : active low at the inmost position of pickup	52	OSC 2	O	Clock Oscillation output
27	TEST	I	Test mode input	53	GND	--	Ground
28	CLOSE	O	Close signal output	54	KEYO6	O	Key matrix output
29	OPEN	O	Open signal output	55	DCS IN	I	Compu-link signal input
30	TLOF	O	Tracking servo off signal output	56	DCS OUT	O	Compu-link signal output
31	GU	O	Tracking gain up signal output	57	KEYO7	O	Key matrix output
32	VCC	--	+ 5V	58~60	NC	–	Non connection
33	SCK	O	Clock output for IC841	61	12G	O	FL grid control output
34	(D OUT) SI	I	Serial data input from IC841	62~64	11G~9G	O	FL grid control output

■YM7121C(IC841)

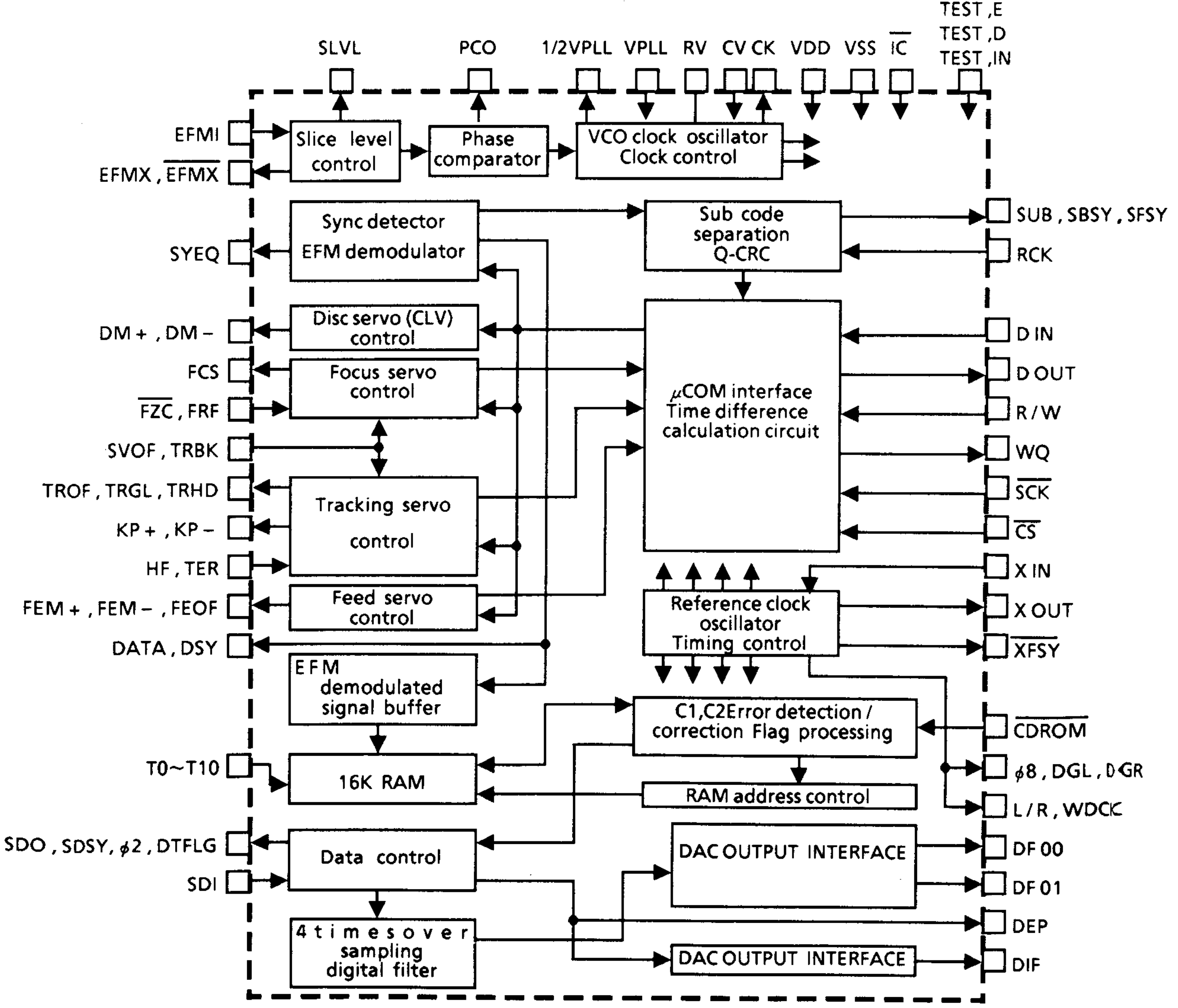
1. Outline

YM7121 is a C-MOS LSI for signal processing and servo control (SVC) in a CD player. It is used for the demodulation of the EFM signal from the laser pick up , detection / correction of the error signal , signal processing in digital filtering , etc. and for various servo controls (focusing , disc , tracking and feed servos).
And it contains digital interface which output the audio digital signals in S-RAM and CD-player. This digital interface matches EIAJ standards.

2. Top View


64~41
65
∫
80
YM7121C
40
∫
25
1~24

3. Inner Block Diagram


SLVL
PCO
1/2VPLL
VPLL
RV
CV CK
VDD
VSS
$\overline{IC}$
TEST,E
TEST,D
TEST,IN
EFMI
EFMX, $\overline{EFMX}$
Slice level control
Phase comparator
VCO clock oscillator Clock control
Sync detector EFM demodulator
Sub code separation Q-CRC
SUB, SBSY, SFSY
RCK
SYEQ
Disc servo (CLV) control
DM+, DM−
D IN
FCS
Focus servo control
D OUT
$\overline{FZC}$, FRF
μCOM interface Time difference calculation circuit
R/W
SVOF, TRBK
WQ
TROF, TRGL, TRHD
Tracking servo control
$\overline{SCK}$
KP+, KP−
$\overline{CS}$
HF, TER
X IN
FEM+, FEM−, FEOF
Feed servo control
Reference clock oscillator Timing control
X OUT
DATA, DSY
$\overline{XFSY}$
EFM demodulated signal buffer
C1,C2Error detection / correction Flag processing
$\overline{CDROM}$
T0~T10
16K RAM
φ8, DGL, DGR
RAM address control
L/R, WDCK
SDO, SDSY, φ2, DTFLG
Data control
DAC OUTPUT INTERFACE
DF00
SDI
DF01
4 times over sampling digital filter
DEP
DAC OUTPUT INTERFACE
DIF

4. Terminal Function

Pin No.	Symbol	I/O	Function and Operation
1	CV	I	Adequate time constant is added to this terminal and input the PCO output. This makes the structure of clock reproduce circuit by inner VCO circuit.
2	RV	–	RV terminal is standard voltage terminal of inner VCO. And capacity for stabilizing is added to this terminal.
3 32 72	VDD	–	These are +5V power supply terminals.
4 5 70	TEST. IN TEST. E TEST. D	I I I	These terminals are for test.
6	SYEQ	O	This is the check output terminal, it becomes high when flame synchronizing signal detected from EFM pattern coincides frame synchronizing signal from internal counter.
7 8	DSY DATA	O O	Not used.
9	CK	O	CK has 4.3218 MHz clock.
10~19	T0~T9	I	This terminal is internal RAM test terminal, and connected GND.
22	DEP	O	De-emphasis is necessary when this terminal is high.
23	DIF	O	DIF is digital audio interface format output matched EIAJ standards.
24	SDO	O	SDO is a serial signal output of φ2 bit rate. (The MSB puts in at first.)
25	SDI	I	SDI is the input terminal of 4 times over sampling digital filter. It is usually connected with SDO.
26	SDSY	O	Not used.
27	DTFLG	O	Not used.
28	φ2	O	Not used.
29, 52, 77,66	VSS	–	GND
30	XOUT	O	Not used.
31	XIN	I	Input from crystal clock.
33	$\overline{\text{XFSY}}$	O	Not used.
34 35 36 37	SUB SBSY RCK SFSY	O O I O	After detecting that SBSY changes from low to high by IC991, the sub-code(P~W) can be output from SUB output terminal by inputting 8 clocks to RCK terminal at every point where SFSY changes low to high.
38	$\overline{\text{CDROM}}$	O	Not used.
39	φ8	O	φ8 is 8.4672MHz crystal clock.
40	WDCK	O	Not used.
41	L/R	O	This is synchronizing signal for data transfer and it connects with DAC.
42 43	DGL DGR	O O	Not used.
44 45	DF01 DF00	O O	Serial data output.(Right channel). Serial data output.(Left channel).
46	$\overline{\text{SCK}}$	I	This terminal is connected to μCOM. It is an input terminal that carries the clock signal for data transfers.
47	R/W	I	This connects with microcomputer and it is an output terminal for switching data transmission mode. it enables to transmit data from SVC to microcomputer when R/M is "L" and from microcomputer to SVC when R/W is "H".
48	$\overline{\text{CS}}$	I	This is a chip select terminal for YM7121.
49	DOUT	O	This terminal is the data output terminal connected to μCOM. When R/W is low, data is transferred from YM7121 to μCOM, according to theSCK clock input.

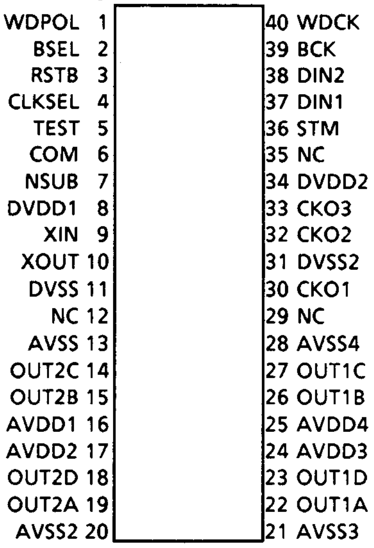
Pin No.	Symbol	I/O	Function and Operation
50	WQ	O	This terminal is connected to μCOM. It is a request signal which demands to μCOM inputting the data transfer (YM7121 to μCOM).
51	DIN	I	This is a data input terminal connected to μCOM. When R/W is high, the data is transferred from μCOM to YM7121 according to the SCK clock input.
53 54	DM+ DM−	O O	These terminals output the PWM to control the speed of spindle motor. The speed of the motor goes up when DM+ is high, and slows down when DM− is high: both terminals can not become high simultaneously.
55 56 60 61 62 63 64	HF TER TRHD TRGL TROF KP− KP+	I I O O O O O	When tracks are being crossed during serches, the amplitude variation of the generated HF signal is sampled at the zero-cross point of the tracking error signal TER and the TROF signal is output. The level variations of this signal turn the servo on and off, greatly facilitaing track acquisition. KP+ or KP− is output to conduct tracking, and TRHD is output during tracking to cause generation of the tracking error signal. The TRGL signal is for increasing the tracking gain after tracking is completed.
57 58 59	FEM+ FEM− FEOF	O O O	The FEM+ and FEM− are output as high speed feed signals, and FEOF signal is output for cutting the feed servo during high speed feed.
65	TRBK	I	TRBK is input to apply tracking brake from outside. TRGL becomes low with high input and inner control signal TBKE becomes high.
67 68 69	$\overline{\mathrm{FZC}}$ FCS FRF	I O I	These terminals are used for controlling the focus servo. The FCS is for a leading signal of Focusing; the signal, generated when the focus point is achieved, terminate the focusing operation; and FCO flag is dropped internally by FRF signal generated when reflected light is detected.
71	$\overline{\mathrm{IC}}$	I	YM7121 needs initializing when power supply turn on. IC will be low more than 400μs since XIN is input clock with VDD standard.
73 74 75	SLVL EFMX $\overline{\mathrm{EFMX}}$	O O O	Amplitude limited, mutually anti-phased signals are output from EFMX and $\overline{\mathrm{EFMX}}$. Slice level is controlled by these signals and external amplifier. SLVL is output amplitude alteration component of both terminals. When integral circuit is connected to external. YM7121 easily can control slice level.
76	EFMI	I	This terminal is input EFM signal. (1~2 Vpp)
78	PCO	O	This terminal outputs the phase difference when the polarity of the clock and the EFM pattern changes.
79	VPLL	I	This terminal is input D.C. voltage matched VCO free run frequency. (17.2872 MHz)
80	1/2 VPLL	O	This terminal outputs a half of VPLL input, and capacity for stabilizing is added to this terminal.

■JCE4501(IC873) : D / A CONVERTER

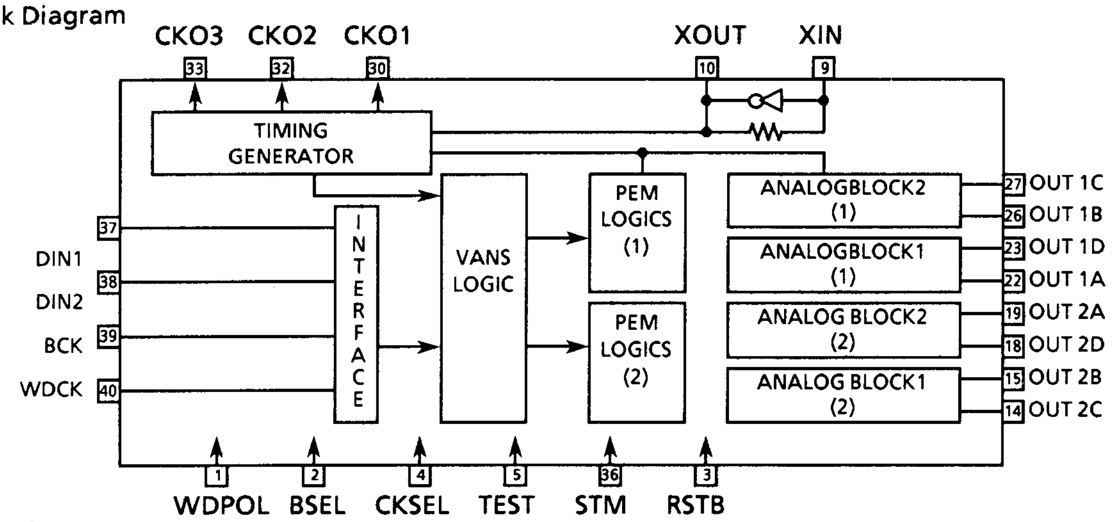
1. Outline

The JCE4501 is a CMOS digital-analog converter with independent left and right channels. It was developed for PCM digital audio equipment.It features pulse edge modulation (PEM) and Victor advanced noise shaping (VANS) for resolution equipment to 20 bits(0-20kHz) and a low distortion ratio. At JVC, this type of digital-analog converter is called a DD converter.

2. Terminal Layout


WDPOL 1
BSEL 2
RSTB 3
CLKSEL 4
TEST 5
COM 6
NSUB 7
DVDD1 8
XIN 9
XOUT 10
DVSS 11
NC 12
AVSS 13
OUT2C 14
OUT2B 15
AVDD1 16
AVDD2 17
OUT2D 18
OUT2A 19
AVSS2 20
40 WDCK
39 BCK
38 DIN2
37 DIN1
36 STM
35 NC
34 DVDD2
33 CKO3
32 CKO2
31 DVSS2
30 CKO1
29 NC
28 AVSS4
27 OUT1C
26 OUT1B
25 AVDD4
24 AVDD3
23 OUT1D
22 OUT1A
21 AVSS3

3. Block Diagram

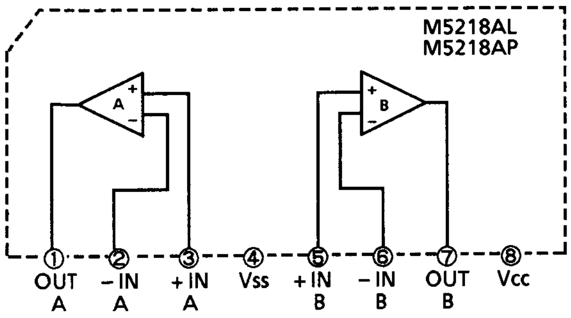

CKO3
CKO2
CKO1
33
32
30
XOUT
XIN
10
9
TIMING GENERATOR
INTERFACE
VANS LOGIC
PEM LOGICS (1)
PEM LOGICS (2)
ANALOGBLOCK2 (1)
ANALOGBLOCK1 (1)
ANALOG BLOCK2 (2)
ANALOG BLOCK1 (2)
27 OUT 1C
26 OUT 1B
23 OUT 1D
22 OUT 1A
19 OUT 2A
18 OUT 2D
15 OUT 2B
14 OUT 2C
37 DIN1
38 DIN2
39 BCK
40 WDCK
1 WDPOL
2 BSEL
4 CKSEL
5 TEST
36 STM
3 RSTB

4.Description

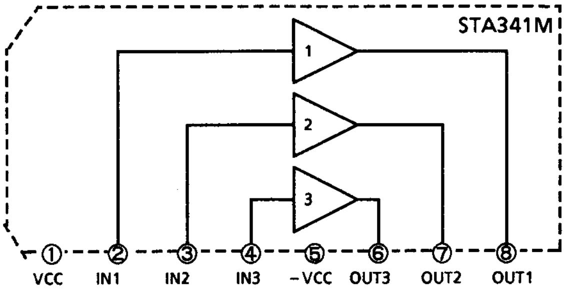
Pin No	Symbol	I/O	Description	Pin No	Symbol	I/O	Description
1	WDPOL	I	Word data polarity switching pin	21	AVSS3	--	Analog ground pin 3
2	BSEL	I	H:CDX2554P format,L: YM3414 format	22	OUT1A	O	Not used
3	RSTB	I	Reset pin (low active)	23	OUT1D	O	1D PEM output pin
4	CLKSEL	I	H: 256fs mode,L: 384fs mode	24	AVDD3	--	Analog power supply pin 3
5	TEST	I	Test mode switching pin	25	AVDD4	--	Analog power supply pin 4
6	COM	I	COM board voltage fastening pin	26	OUT1B	O	Not used
7	NSUB	I	Silicon board voltage fastening pin	27	OUT1C	O	1C PEM output pin
8	DVDD1	--	Digital power supply pin 1	28	AVSS4	--	Analog ground pin 4
9	XIN	I	Crystal oscillator input pin	29	NC	--	To ground
10	XOUT	O	Crystal oscillator output pin	30	CKO1	O	Clock output pin 1(384fs output)
11	DVSS1	--	Digital ground pin 1	31	DVSS2	--	Digital ground pin 2
12	NC	--	To ground	32	CKO2	O	Clock output pin 2(192fs output)
13	AVSS1	--	Analog ground pin 1	33	CKO3	O	Clock output pin 3(128fs output)
14	OUT2C	O	2C PEM output pin	34	DVDD2	--	Digital power supply pin 2
15	OUT2B	O	Not used	35	NC	--	Non connection
16	AVDD1	--	Analog power supply pin 1	36	STM	I	Stereo/Monaural switching pin H: stereo,L:left channel,reversed polarity left channel
17	AVDD2	--	Analog power supply pin 2	37	DIN1	I	Left channel 18-bits 8Fs serial data input
18	OUT2D	O	2D PEM output pin	38	DIN2	I	Right channel 18-bits 8Fs serial data input
19	OUT2A	O	Not used	39	BCK	I	Bit clock input pin
20	AVSS2	--	Analog ground pin 2	40	WDCK	I	Word clock input pin

Internal Block Diagrams of Other ICs

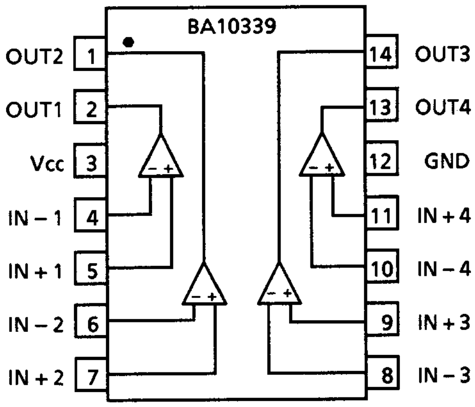
■ M5218AL (IC 762,781,803) M5218AP (IC 871) : Dual OP Amp.


M5218AL
M5218AP
A
B
+
−
①
②
③
④
⑤
⑥
⑦
⑧
OUT A
−IN A
+IN A
Vss
+IN B
−IN B
OUT B
Vcc

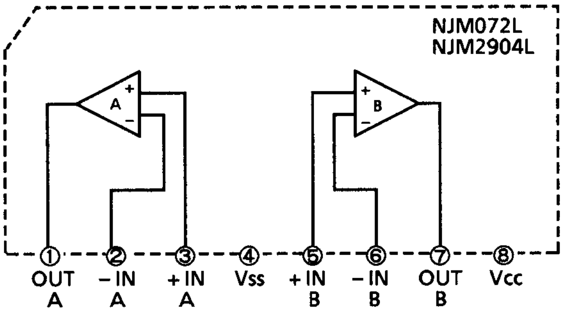
■ STA341M (IC761) : Motor Driver


STA341M
1
2
3
①
②
③
④
⑤
⑥
⑦
⑧
VCC
IN1
IN2
IN3
−VCC
OUT3
OUT2
OUT1

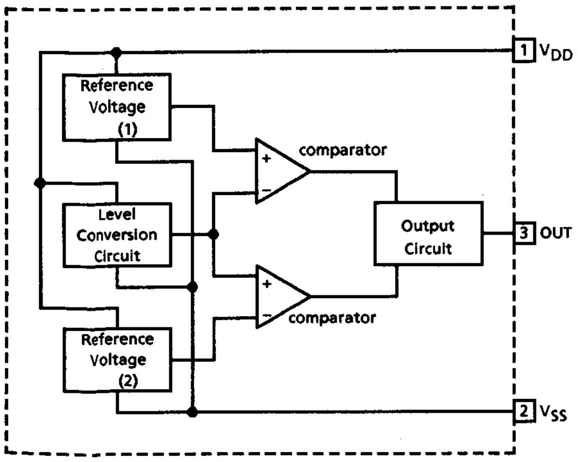
■ XRA10339 (IC802) : Comparator


BA10339
OUT2 1
OUT1 2
Vcc 3
IN−1 4
IN+1 5
IN−2 6
IN+2 7
OUT3 14
OUT4 13
GND 12
IN+4 11
IN−4 10
IN+3 9
IN−3 8
− +

■ NJM072L (IC801) : Dual OP Amp. NJM2904L(IC971): Dual Comparator


NJM072L
NJM2904L
A
B
+
−
①
②
③
④
⑤
⑥
⑦
⑧
OUT A
−IN A
+IN A
Vss
+IN B
−IN B
OUT B
Vcc

■ MN1280 (P.Q). : IC992 RESET IC

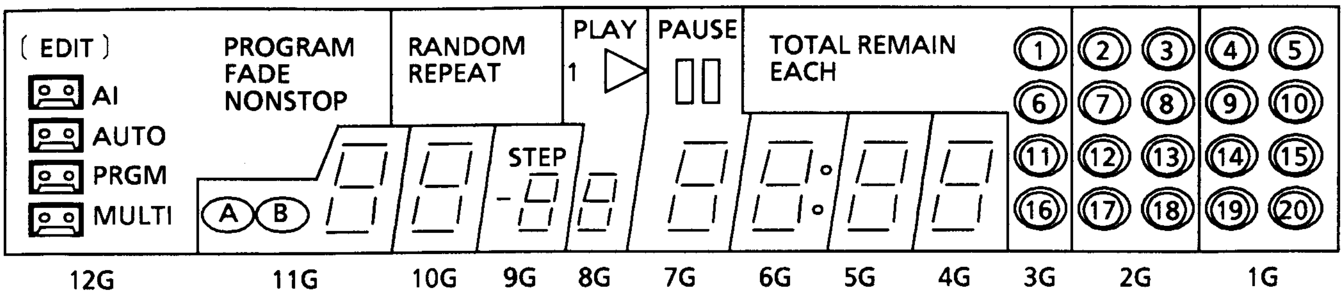

Reference Voltage (1)
Level Conversion Circuit
Reference Voltage (2)
comparator
comparator
+
−
Output Circuit
1 VDD
3 OUT
2 Vss

Pin No.	Pin Name	Functions
1	V_{DD}	Power supply
2	V_{SS}	Ground
3	OUT	Reset signal output : Low level is output when resetting : High level is output when cancelling the reset.

Internal Connections for the FL Display Tube

■ ELU0001-140:(FL991)

1. Grid Layout


(EDIT)
AI
AUTO
PRGM
MULTI
PROGRAM
FADE
NONSTOP
A
B
RANDOM
REPEAT
STEP
PLAY
1
PAUSE
TOTAL REMAIN
EACH
①②③④⑤
⑥⑦⑧⑨⑩
⑪⑫⑬⑭⑮
⑯⑰⑱⑲⑳
12G
11G
10G
9G
8G
7G
6G
5G
4G
3G
2G
1G

2. Pin Connections

TERMINAL NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
ELECTRODE	F1	F1	NP	NP	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	P8	P7	P6	P5	P4	P3

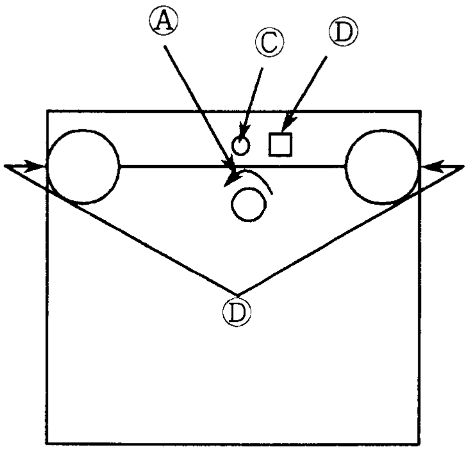
TERMINAL NO.	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43			
ELECTORODE	P2	P1	NP	1G	2G	3G	4G	P9	5G	6G	7G	8G	9G	10G	11G	12G	NP	NP	F2	F2			

(Note) F: Filament G: Grid NP: NoPin NC: No Connection P1~P9: Anode

3. Anode Connection Table

	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
S1	AI&MARK	a	a	a	a	a	a	a	a	(1)	(2)	(4)
S2	AUTO&MARK	b	b	b	b	b	b	b	b	(6)	(7)	(9)
S3	PRGM&MARK	c	c	c	c	c	c	c	c	(11)	(12)	(14)
S4	MULTI&MARK	d	d	d	d	d	d	d	d	(16)	(17)	(19)
S5	FADE	e	e	e	e	e	e	e	e	TOTAL	(3)	(5)
S6	NONSTOP	f	f	f	f	f	f	f	f	EACH	(8)	(10)
S7	(EDIT)	g	g	g	g	g	g	g	g	REMAIN	(13)	(15)
S8	PROGRAM	(A)	RANDOM	STEP	REPEAT (1)	----	----	----	----	----	(18)	(20)
S9	----	(B)	REPEAT	(−)	PLAY >	PAUSE	DP(:)	----	----	----	----	----

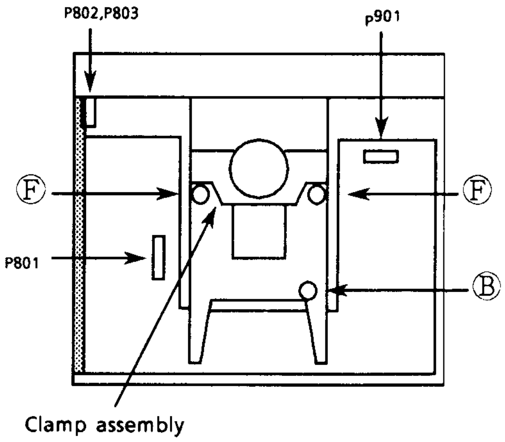
Disassembly Procedures



1. Removing the top cover
(1) Remove the 2 screws on both sides of the top cover and the 4 screws on the rear side.
(2) Gently spread both sides of the top cover to the outside, lift up the rear section, and remove the top cover.

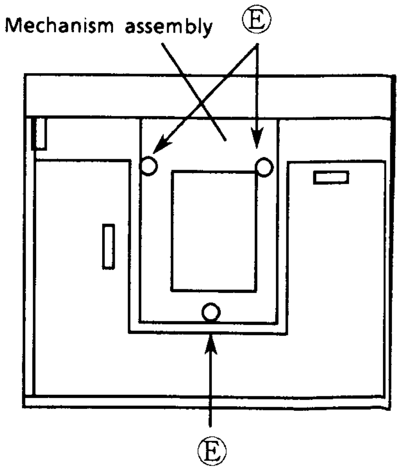
2. Removing the tray
(1) Remove the top cover.
(2) Switch on the power of RX-MXG9BK.
Press the OPEN / CLOSE switch to bring the tray forward and with the tray forward, switch off the power.
(3) Remove the screw on the tray Ⓑ.
(4) Pull the tray toward the front to move it.

Note
If the power does not come on due to breakdown or the, insert a Philips screwdriver through the hole at the bottom of the front panel and turn it counter-clockwise to bring the tray forward Ⓐ.



3. Removing the front panel assembly
(1) Remove the top cover.
(2) Remove the connectors (P901) connecting with main P.C. Boards.
(3) Remove the screw Ⓒ
(4) Remove the 3 hooks Ⓓ to remove the front panel.

4. Removing the mechanism assembly
(1) Remove the top cover.
(2) Remove the tray.
(3) Remove the connectors (P801, P802,P803).
(4) Remove the 2 screws Ⓕ holding the clamp assembly, then remove it.
(5) Remove the 3 screws Ⓔ holding the mechanism assembly.

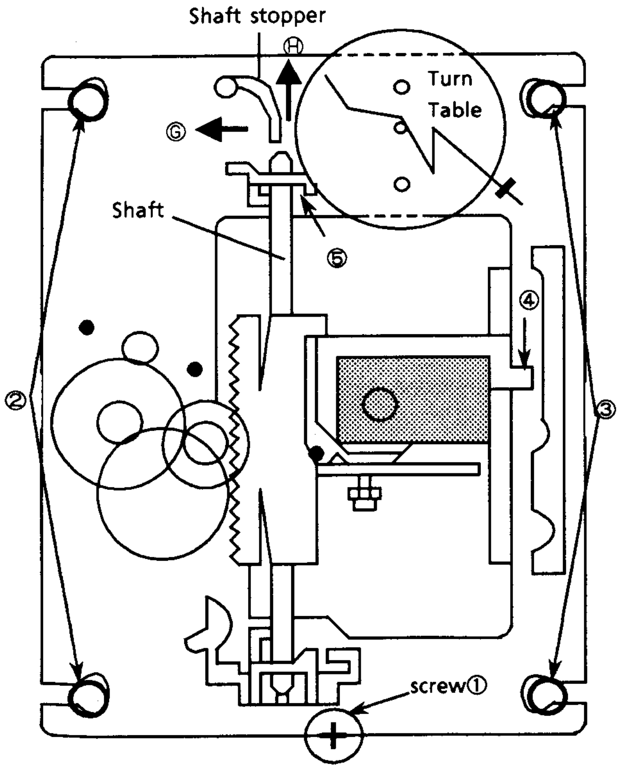


7. Removing the Laser Pickup

1) Remove the metal cover, tray assembly and the clamp.
2) Remove the screw ① from the Mecha Base assembly.
3) Remove the Mecha Base assembly from the rubber cushion ②③.
4) Move the Shaft stopper from the rest position to the left side Ⓖ.
5) Remove the Pickup Shaft from the Mecha Base assembly.(Slide the Pickup shaft to the up sideⒽ)
6) Remove the CD Pick Unit with the shaft.

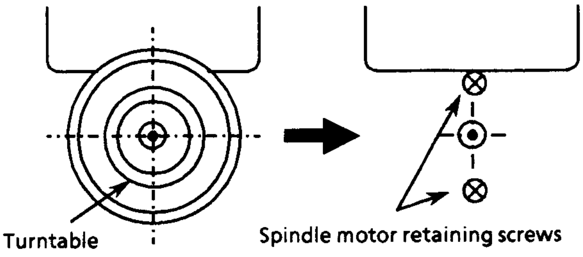
8. Installing the Laser Pickup (See page 1-14)
(See page1-15(**Before installing the pickup**))

1) Connect the Flat wire with the connectors of APC (Automatic Power Control) P.C.Board.
2) While installing the ④ in the CD Support, set the shaft on the base hook⑤.
3) Install the Mecha Base assembly to the rubber cushion ②③.



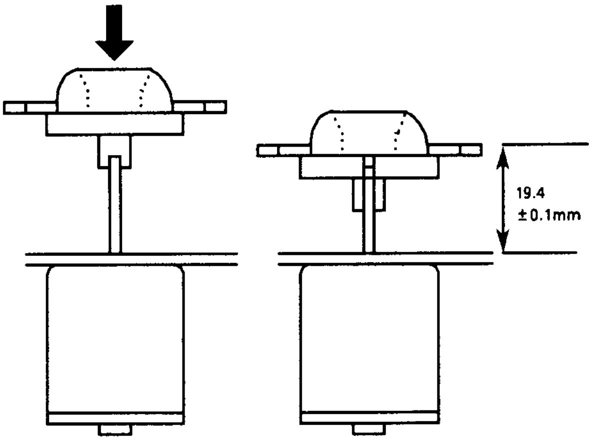
9. Removing the spindle motor

1) Remove the Mechanism assembly.
2) Remove the turntable, and remove the two screws retaining the spindle motor.
3) Remove the screw retaining the spindle and the Feed Motor P.C. Board and unsolder it.

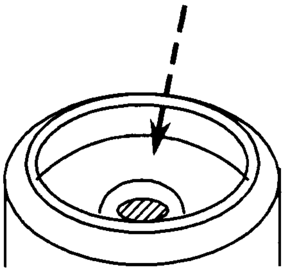


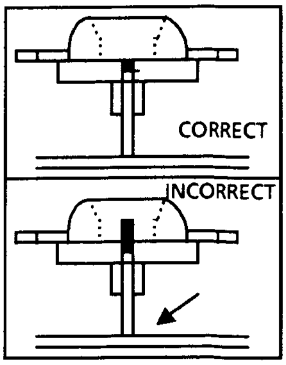
10. Installing the spindle motor

1) Tighten the 2 screws to the same torque.
2) Fasten the Spindle and the Feed Motor P.C. Board with the screw and solder.
3) Install the turntable.When installing, press straight down at the center of the turntable until the distance from the surface of the mechanism base to the top of the turntable is exactly 19.4 ± 0.1mm.



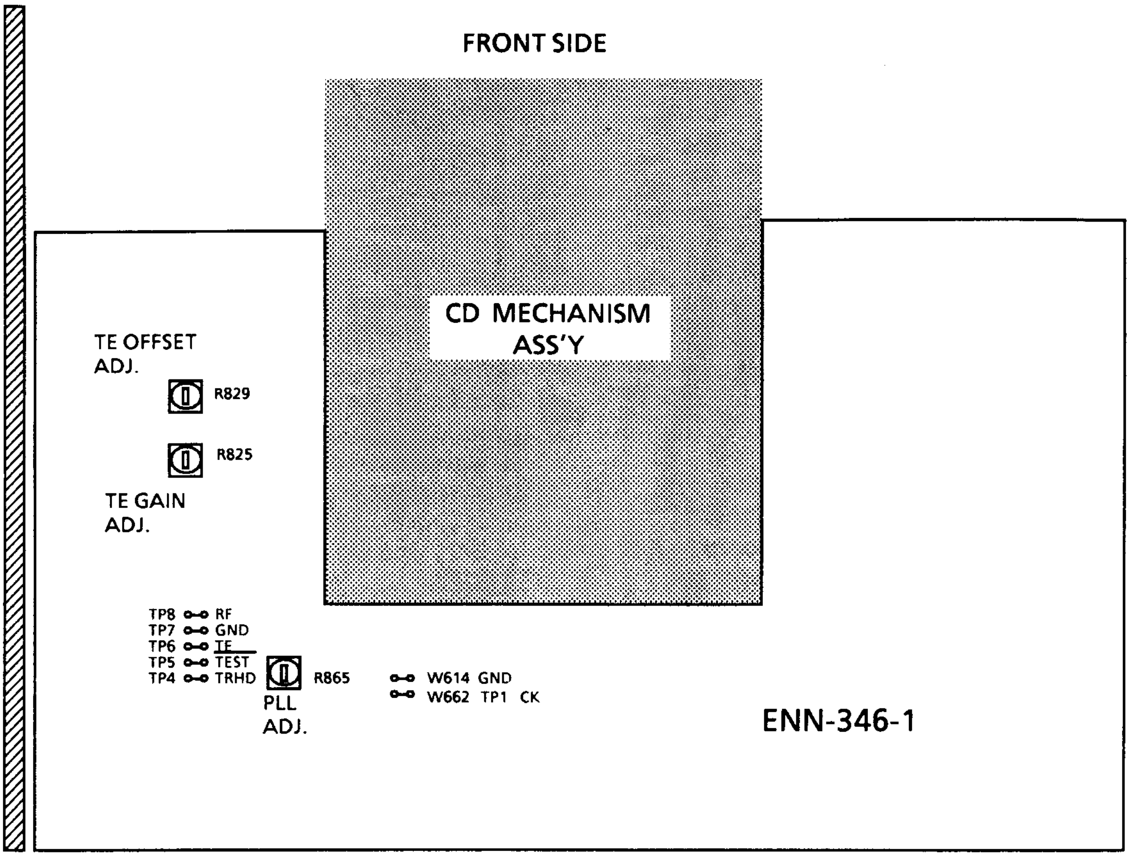
4) After insertion is complete, bond the motor shaft and turntable together (at the section marked by an arrow in the figure on the left below).





5) Use "LOCKTITE" #460 bonding agent, and apply as little as possible. Take care not to allow any excess bonding agent to get onto the turntable. Be extremely careful not to allow bonding agent to adhere to the motor bearings (the section marked by an allow in the figure on the right).

Adjustment Procedures


FRONT SIDE
CD MECHANISM ASS'Y
TE OFFSET ADJ.
R829
R825
TE GAIN ADJ.
TP8 RF
TP7 GND
TP6 TE
TP5 TEST
TP4 TRHD
R865
PLL ADJ.
W614 GND
W662 TP1 CK
ENN-346-1

*** Use RX-G90RBK when adjusting.**

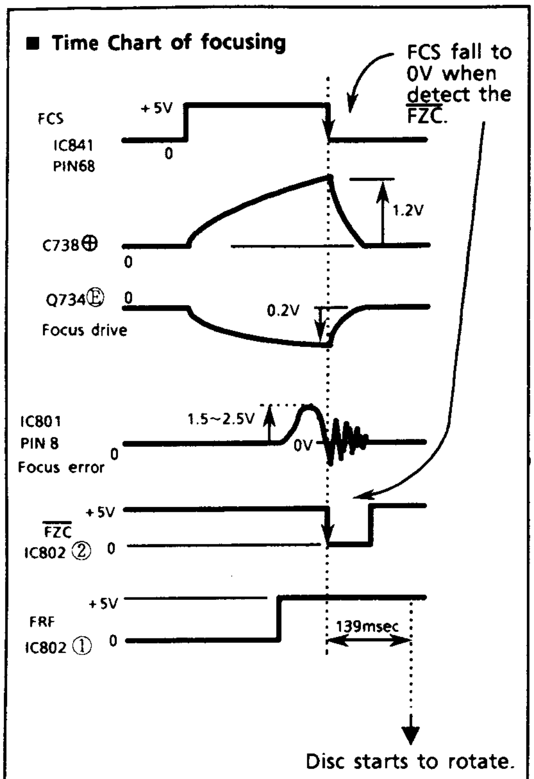
1. PLL free-running adjustment
   1) Measuring instrument
      Frequency counter
   2) Adjusting procedure
      (1) Connect a frequency counter with TP1 (CK:W662) and W614 (GND) on the main PC board.
      (2) Adjust R865 for setting the frequency counter's value becomes 4.295 ± 0.005MHz.

2. Tracking gain adjustment
   1) Measuring instruments
      Oscilloscope, Normal disc
   2) Adjusting procedure
      (1) Connect an oscilloscope with TP6 (TE) and TP7 (GND) on the main PC board.
      (2) Play a disc.
      (3) Short circuit TP5 (TEST) to TP7 (GND).
      (4) Adjust R825 for setting tracking error signal becomes 2.0 $V_{P\text{-}P}$.

3. Tracking offset adjustment
   1) Measuring instruments
      Oscilloscope, Normal disc
   2) Adjusting procedure
      (1) Connect an oscilloscope with TP6 (TE) and TP7 (GND) on the main PC board.
      (2) Play a disc.
      (3) Short circuit TP5 (TEST) to TP7 (GND).
      (4) Adjust R829 for setting the DC level of the tracking error (offset) becomes 0.

Flow of Functional Operation Until TOC is Read

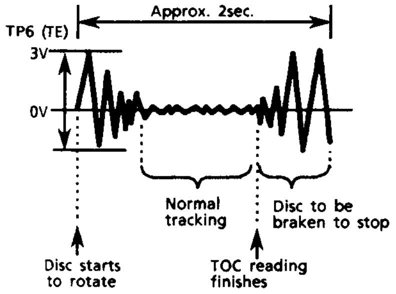
■ Time Chart of focusing



- When the lens moves up and down in a 2-seconds interval, FZC is not output.
- When the lens moves up and down in less than 1-second, FRF is not output or the focus servo loop is abnormal.

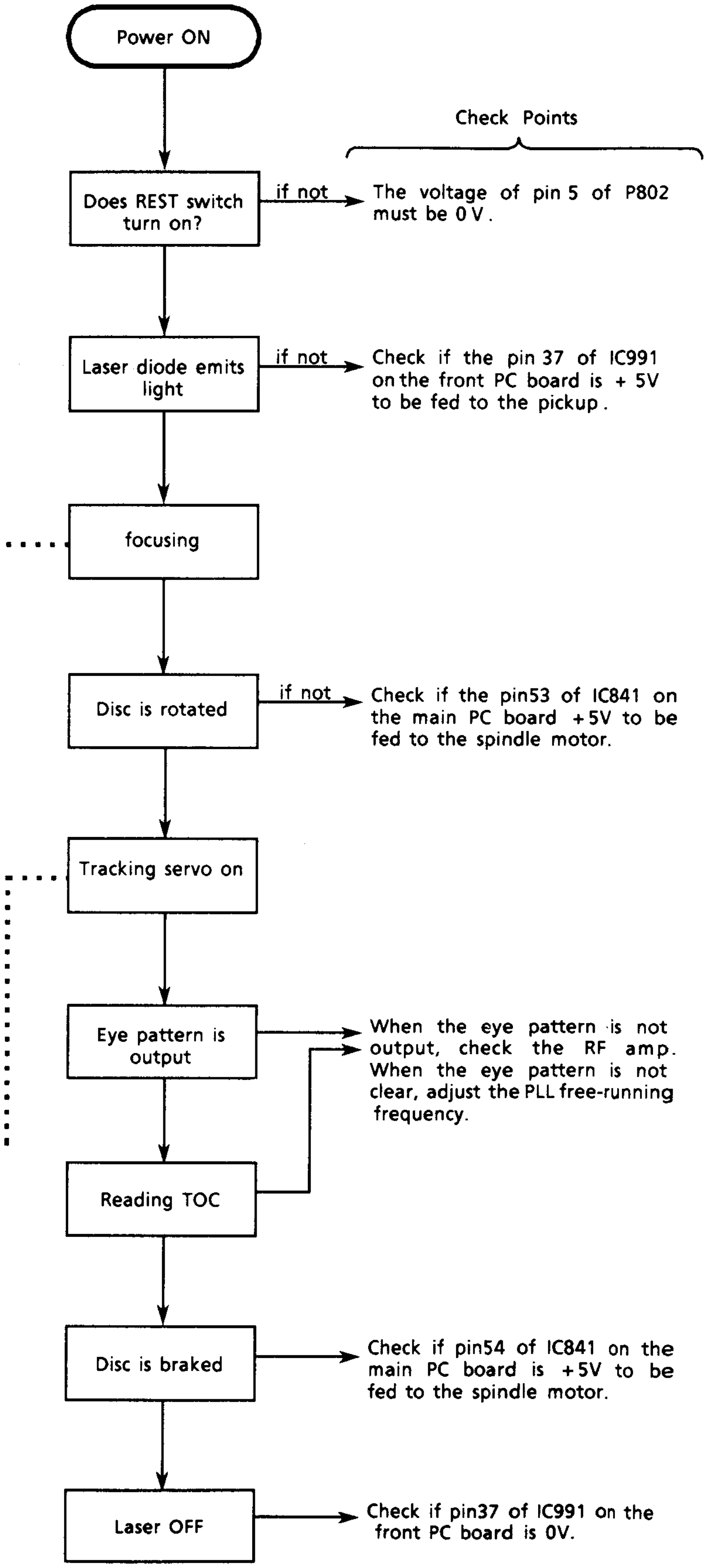
Fig-1

■ Tracking error waveform at TOC reading



■ When the tracking loop does not turn ON, check the tracking offset and align it to 0.

Fig-2


Power ON
Does REST switch turn on?
if not
Laser diode emits light
if not
focusing
Disc is rotated
if not
Tracking servo on
Eye pattern is output
Reading TOC
Disc is braked
Laser OFF
Check Points

The voltage of pin 5 of P802 must be 0V.

Check if the pin 37 of IC991 on the front PC board is + 5V to be fed to the pickup.

Check if the pin53 of IC841 on the main PC board +5V to be fed to the spindle motor.

When the eye pattern is not output, check the RF amp. When the eye pattern is not clear, adjust the PLL free-running frequency.

Check if pin54 of IC841 on the main PC board is +5V to be fed to the spindle motor.

Check if pin37 of IC991 on the front PC board is 0V.

Maintenance of Laser Pickup

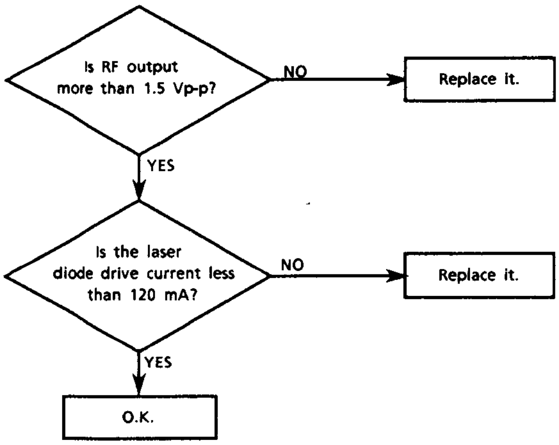
1. Life of the laser diode

When the life of the laser diode has expired, the following symptoms will appear.

(1) The level of RF output (EFM output: amplitude of eye pattern) will be low.

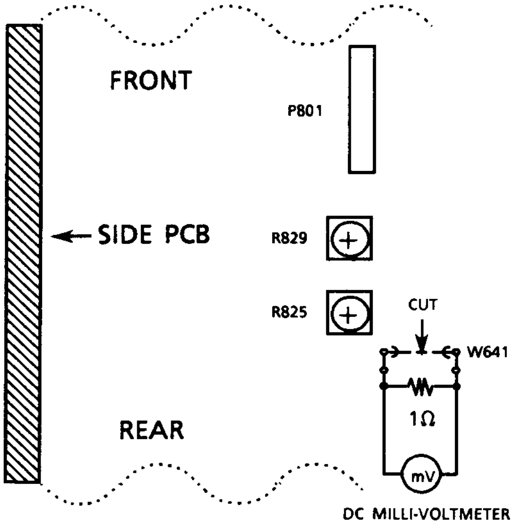
(2) The drive current required by the laser diode will be increased.

In such a case, check the life of the laser diode following the flowchart below


Is RF output more than 1.5 Vp-p?
NO
Replace it.
YES
Is the laser diode drive current less than 120 mA?
NO
Replace it.
YES
O.K.

2. Measurement of laser diode drive current

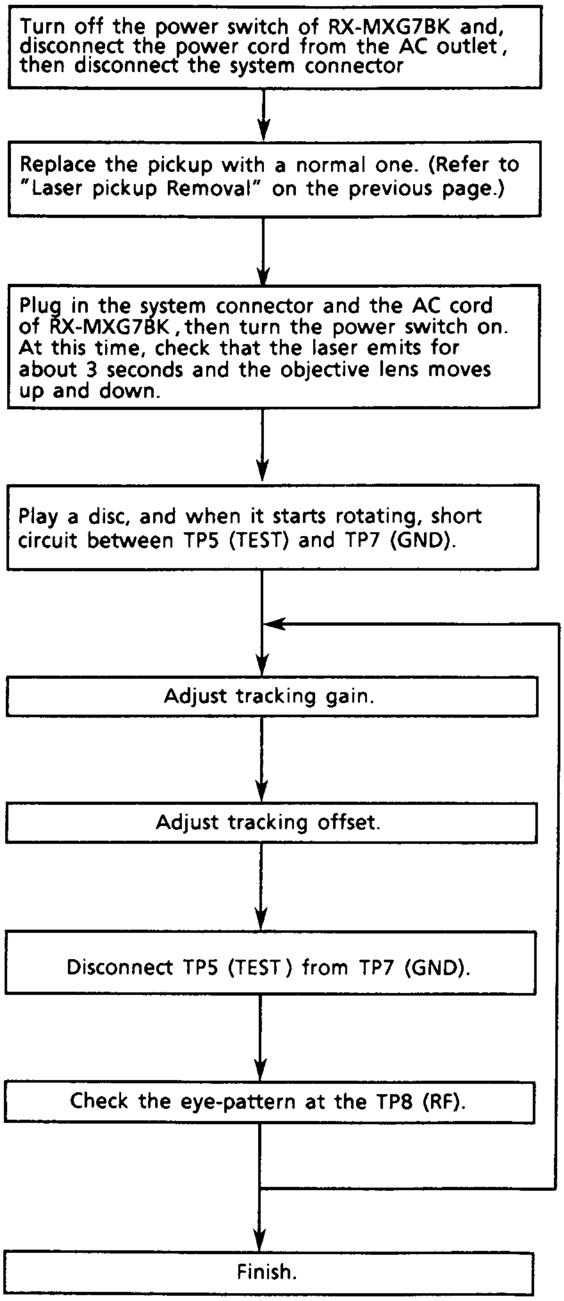
Replace the jump wire (W641) shown below with the resistor (1Ω).
Measure the voltage across the resistor with a milli-voltmeter. When the voltage is more than 120mV, it shows that the life of the laser diode has expired



3. Semi-fixed resistor on the APC PC board

The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power. Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.
If the laser power is lower than the specified value, the laser diode is almost worn out, and the laser pickup should be replaced.
If the semi-fixed resistor is adjusted while the pickup is functioning normally, the laser pickup may be damaged due to excessive current.

Replacement of Laser Pickup



Turn off the power switch of RX-MXG7BK and, disconnect the power cord from the AC outlet, then disconnect the system connector

Replace the pickup with a normal one. (Refer to "Laser pickup Removal" on the previous page.)

Plug in the system connector and the AC cord of RX-MXG7BK, then turn the power switch on. At this time, check that the laser emits for about 3 seconds and the objective lens moves up and down.

Play a disc, and when it starts rotating, short circuit between TP5 (TEST) and TP7 (GND).

Adjust tracking gain.

Adjust tracking offset.

Disconnect TP5 (TEST) from TP7 (GND).

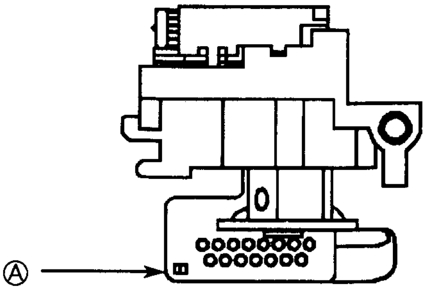
Check the eye-pattern at the TP8 (RF).

Finish.

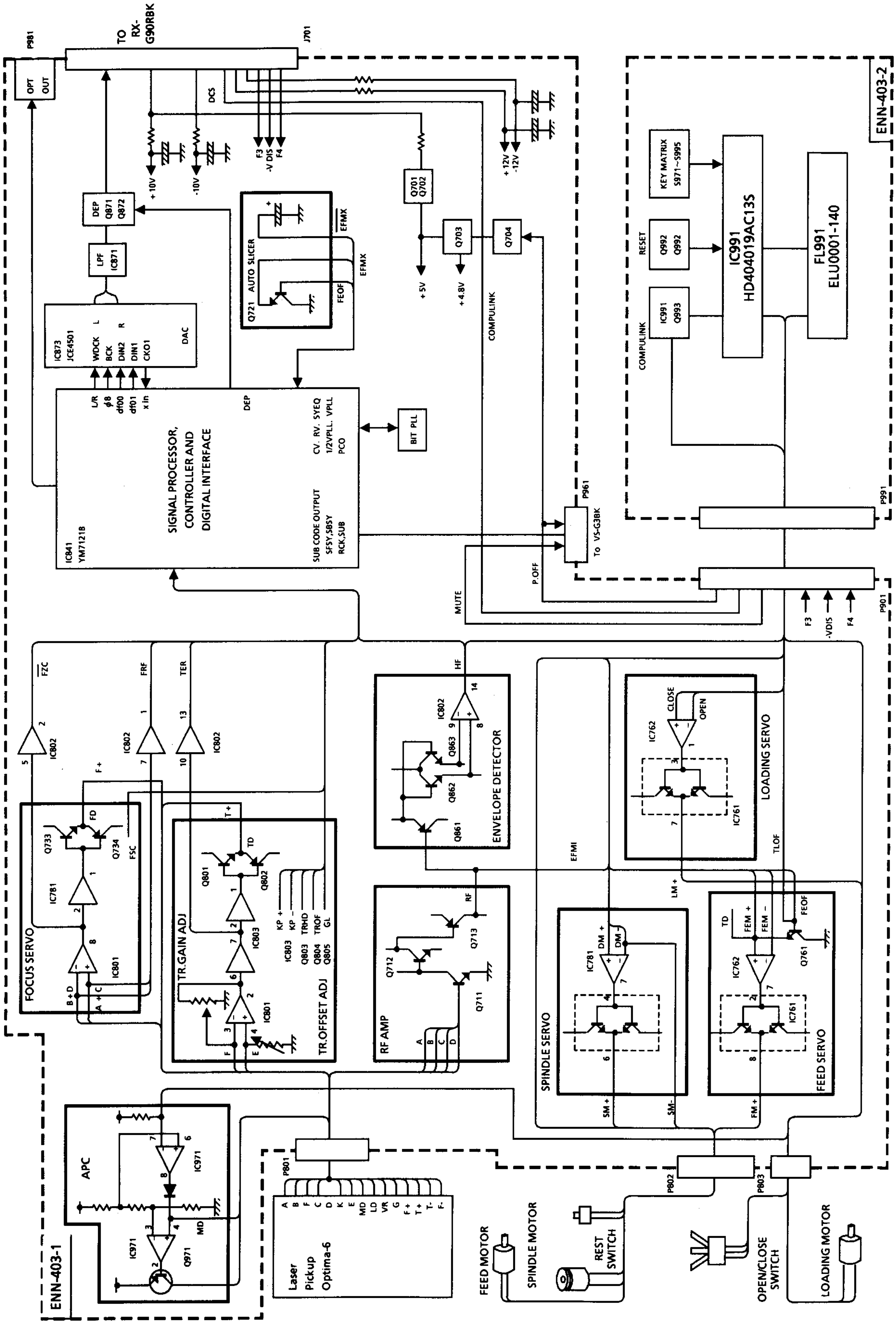
Note : Since one adjustment may affect other settings, repeat these adjustments a few times.

Before installing the pickup

Unsolder the part Ⓐ, which is used for countermeasure for static electricity.



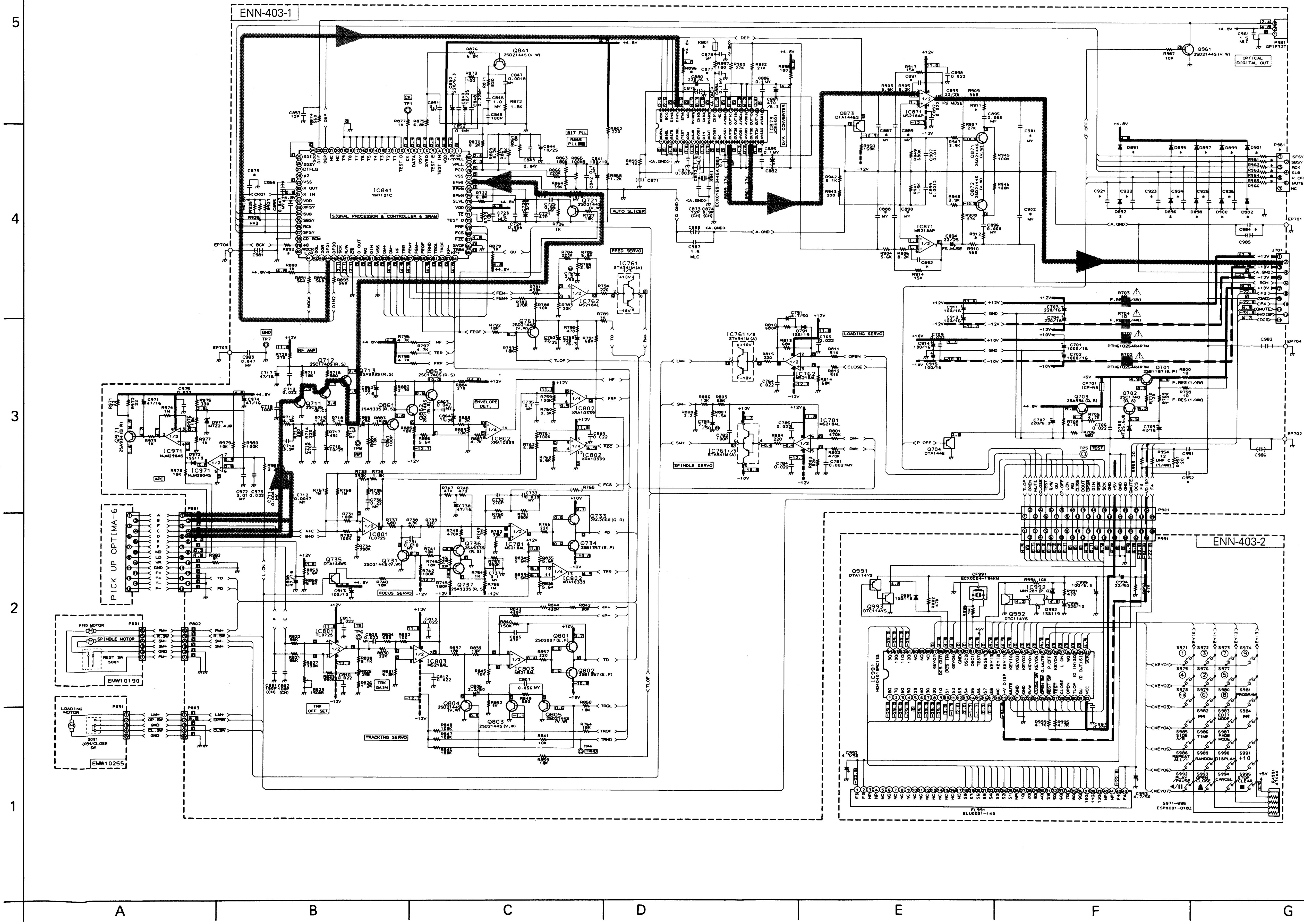
Block Diagram


TO RX-G90RBK
P981
J701
OPT OUT
DCS
+10V
-10V
F3
-V DIS
F4
+12V
-12V
Q701 Q702
Q703
Q704
+5V
+4.8V
COMPULINK
DEP Q871 Q872
LPF IC871
IC873 JCE4501
WDCK
BCK
DIN2
DIN1
CKO1
L
R
DAC
Q721 AUTO SLICER
EFMX
FEOF
L/R
ϕ8
df00
df01
x in
DEP
CV. RV. SYEQ
1/2VPLL. VPLL
PCO
BIT PLL
SIGNAL PROCESSOR, CONTROLLER AND DIGITAL INTERFACE
IC841 YM7121B
SUB CODE OUTPUT
SFSY,SBSY
RCK,SUB
P961
To VS-G3BK
P.OFF
MUTE
ENN-403-2
KEY MATRIX S971~S995
RESET Q992 Q992
COMPULINK IC991 Q993
IC991 HD404019AC13S
FL991 ELU0001-140
P991
P901
F3
-VDIS
F4
FZC
FRF
TER
IC802
F+
FOCUS SERVO
Q733
Q734
FD
FSC
IC781
IC801
B+D
A+C
TR.GAIN ADJ
TR.OFFSET ADJ
T+
TD
Q801
Q802
IC803
KP+
KP-
TRHD
TROF
GL
IC803
Q803
Q804
Q805
F
E
HF
IC802
Q863
Q862
Q861
ENVELOPE DETECTOR
RF
Q713
Q712
Q711
RF AMP
A
B
C
D
EFMI
IC762
CLOSE
OPEN
IC761
LOADING SERVO
TLOF
LM+
DM+
DM-
IC781
SPINDLE SERVO
SM+
SM-
TD
FEM+
FEM-
FEOF
IC762
Q761
IC761
FEED SERVO
FM+
APC
IC971
Q971
MD
ENN-403-1
P801
A B F C D K E MD LD VR G F+ T+ F-
Laser Pickup Optima-6
P802
P803
FEED MOTOR
SPINDLE MOTOR
REST SWITCH
OPEN/CLOSE SWITCH
LOADING MOTOR

Schematic Diagram

Notes:

1. ——— indicates +B power supply.
2. ------ indicates −B power supply.
3. ▨ indicates main signal path.
4. When replacing the parts in the shaded are (▨) and those marked with ⚠, be sure to use the designated parts to ensure safety.
5. The design and contents are subject to change without notice.

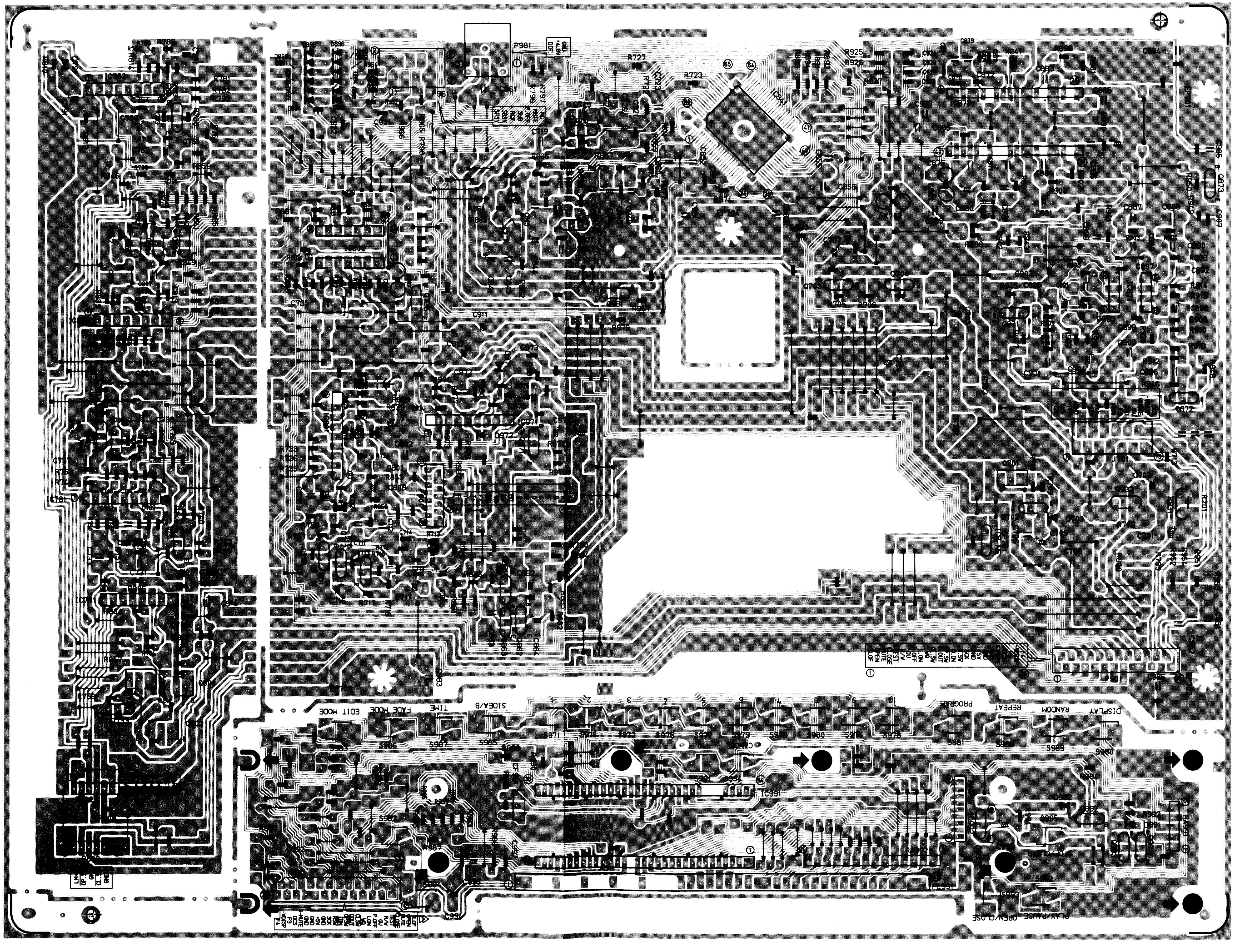

ENN-403-1
ENN-403-2
IC841 YM7121C
SIGNAL PROCESSOR & CONTROLLER & SRAM
IC761 STA341M(A)
FEED SERVO
LOADING SERVO
SPINDLE SERVO
FOCUS SERVO
TRACKING SERVO
ENVELOPE DET.
AUTO SLICER
BIT PLL
RF AMP
APC
IC971 NJM2904S
IC871 M5218AP
IC802 XRA10359
IC801 TL072B
IC803 M5218AL
IC781 M5218AL
IC762 M5218AL
IC991
FL991 ELU0001-146
D/A CONVERTER
OPTICAL DIGITAL OUT
PICK UP OPTIMA-6
FEED MOTOR
SPINDLE MOTOR
REST SW
EMW10190
LOADING MOTOR
OPEN/CLOSE SW
EMW10255
PROVIDED ONLY FOR U, UT, US
CONTROL-C
(FROM CONNECTOR-C OF UNIT RX-MXG9BK)
5
4
3
2
1
A
B
C
D
E
F
G

∗ MARK

SYMBOL / VERSION	F (U, UT, US)	G (A, IS, EF, EN)	H (G, GI)
C951	0.01	0.01	NONE
C952	0.01	0.01	NONE
R925 ~ R927	1K	NONE	NONE
R961 ~ R966	68	NONE	NONE
D891	68P	NONE	NONE
D892	68P	NONE	NONE
D895 ~ D902	1SS119	NONE	NONE
P961	USED	NONE	NONE
C887	680P	680P	0.001
C888	680P	680P	0.001
C889	680P	680P	0.0018
C890	680P	680P	0.0018
C891	150P	150P	120P
C892	150P	150P	120P
C901	NONE	NONE	0.012
C902	NONE	NONE	0.012
R911	220	220	180
R912	220	220	180
C921 ~ C926	68P	NONE	NONE
R892	560	560	2.2K
C984	0.047	0.047	NONE
C877	NONE	NONE	18P
R896	27	27	56
K801	NONE	NONE	ENZ8101-007T
C875	NONE	NONE	5P

Printed Circuit Board

■ ENN-403


EDIT MODE
FADE MODE
TIME
SIDEA/B
PROGRAM
REPEAT
RANDOM
DISPLAY
CANCEL
OPEN/CLOSE
PLAY/PAUSE
IC991
IC701
IC702
IC703
EP701
EP702
EP751
P981
R727
R723
R925
R926

TD-G90RBK

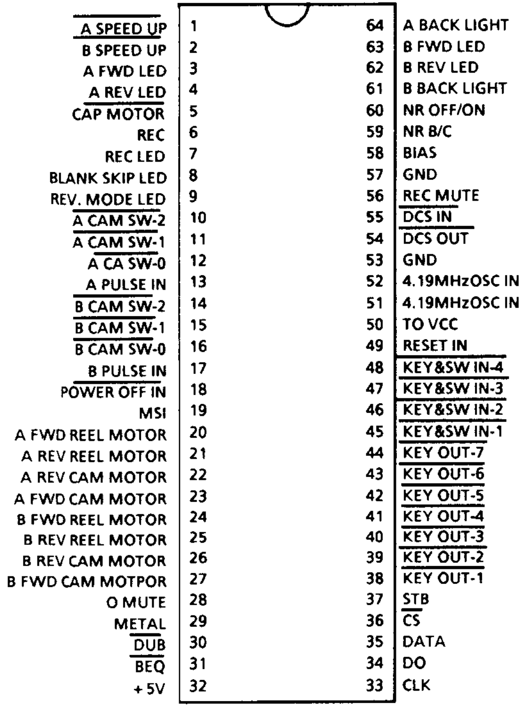
– Contents–

Discription of Major LSIs 5-2
Internal Block Diagram of Other ICs 5-3
Disassembly Procedures 5-6
Adjustment Procedures 5-9
Block Diagram 5-12
Schematic Diagrams 5-13
Printed Circuit Boards 5-14

Description of Major LSIs

■ HD614081SD46(IC401) : System controller

1. Terminal Layout


A SPEED UP
B SPEED UP
A FWD LED
A REV LED
CAP MOTOR
REC
REC LED
BLANK SKIP LED
REV. MODE LED
A CAM SW-2
A CAM SW-1
A CA SW-0
A PULSE IN
B CAM SW-2
B CAM SW-1
B CAM SW-0
B PULSE IN
POWER OFF IN
MSI
A FWD REEL MOTOR
A REV REEL MOTOR
A REV CAM MOTOR
A FWD CAM MOTOR
B FWD REEL MOTOR
B REV REEL MOTOR
B REV CAM MOTOR
B FWD CAM MOTPOR
O MUTE
METAL
DUB
BEQ
+5V
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
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54
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45
44
43
42
41
40
39
38
37
36
35
34
33
A BACK LIGHT
B FWD LED
B REV LED
B BACK LIGHT
NR OFF/ON
NR B/C
BIAS
GND
REC MUTE
DCS IN
DCS OUT
GND
4.19MHzOSC IN
4.19MHzOSC IN
TO VCC
RESET IN
KEY&SW IN-4
KEY&SW IN-3
KEY&SW IN-2
KEY&SW IN-1
KEY OUT-7
KEY OUT-6
KEY OUT-5
KEY OUT-4
KEY OUT-3
KEY OUT-2
KEY OUT-1
STB
CS
DATA
DO
CLK

2. Key Matrix

	KEY&SW-1 (Pin45)	KEY&SW-2 (Pin46)	KEY&SW-3 (Pin47)	KEY&SW-4 (Pin48)
KEY OUT 1 (Pin38)	A ◀	A ◀◀	A ▶▶	A ▶
KEY OUT 2 (Pin39)	B ◀	B ◀◀	B ▶▶	B ▶
KEY OUT 3 (Pin40)	A ■	B ■	B ●	B ❚❚
KEY OUT 4 (Pin41)	A▶▶B	A▶B	—	BLANK SKIP
KEY OUT 5 (Pin42)	FUZZY DIRECT	FUZZY AUTO	DOLBY B	DOLBY C
KEY OUT 6 (Pin43)	B PACK	REV REC	FWD REC	A PACK
KEY OUT 7 (PIn44)	REV.MODE ↩	B CrO2	B METAL	REV.MODE 🔁

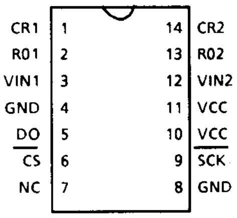
3. Terminal Description

Pin	Symbol	I/O	Description	Pin	Symbol	I/O	Description
1	A SPEED UP	O	A deck speed control output	33	CLK	O	Clock for data transfer
2	B SPEED UP	O	B deck speed control output	34	DO	O	Data output
3	A FWD LED	O	Indication signal for A forward LED	35	DATA	O	Data output
4	A REV LED	O	Indication signal for A reverse LED	36	CS	O	Chip select signal
5	CAP MOTOR	O	Capstan motor control signal	37	STB	O	Strobe signal output
6	REC	O	Recording control signal (H : REC)	38	KO 1	O	Key matrix output
7	B REC LED	O	Indication signal for recording	39	KO 2	O	〃
8	BLA. SKIP LED	O	Indication signal for Blank skip	40	KO 3	O	〃
9		--	Not used	41	KO 4	O	〃
10	A CAM SW 2	I	Input terminal for mech. and head status	42	KO 5	O	〃
11	A CAM SW 1	I	〃	43	KO 6	O	〃
12	A CAM SW 0	I	〃	44	KO 7	O	〃
13	A PULSE IN	I	Pulse signal input from Reel	45	KI 1	I	Key matrix input
14	B CAM SW 2	I	Input terminal for mech. and head status	46	KI 2	I	〃
15	B CAM SW 1	I	〃	47	KI 3	I	〃
16	B CAM SW 0	I	〃	48	KI 4	I	〃
17	B PULSE	I	Pulse signal input from Reel	49	RESET	I	Reset signal input
18	POW. OFF IN	I	Power ON/OFF signal input	50	TO VCC	--	Connected to +5V
19	MS IN	I	Blank detect terminal for music scan	51	4.19MHzOSC	I/O	Clock oscillation terminal
20	AFWD REEL	O	Reel motor control signal	52	4.19MHzOSC	I/O	〃
21	A REV REEL	O	Reel motor control signal	53	GND	--	Ground
22	A REV CAM	O	Cam motor control signal	54	DCS OUT	O	Compulink signal output
23	AFWD CAM	O	Cam motor control signal	55	DCS IN	I	Compulink signal input
24	B FWD REEL	O	Reel motor control signal	56	REC. MUTE	O	Recording mute signal output
25	B REV REEL	O	Reel motor control signal	57	GND	--	Ground
26	B REV CAM	O	Cam motor control signal	58	BIAS	O	ON / OFF signal for bias circuit
27	B FWD CAM	O	Cam motor control signal	59	NR B/C	O	NR B / C switching signal
28	OMUTE	O	Play muting control	60	NR OFF/ON	O	NR ON/OFF signal output
29	METAL	O	Recording bias control for METAL tape	61		--	Not used
30	DUB	O	High speed dubbing control	62	B REV LED	O	Indication signal for B reverse
31	BEQ	O	Equalizer switching signal	63	B FWD LED	O	Indication signal for B forward
32	+5V	--	Power supply	64		--	Not used

Internal Block Diagram of Other ICs

■ M62302P(IC202) : A/D converter for AV level

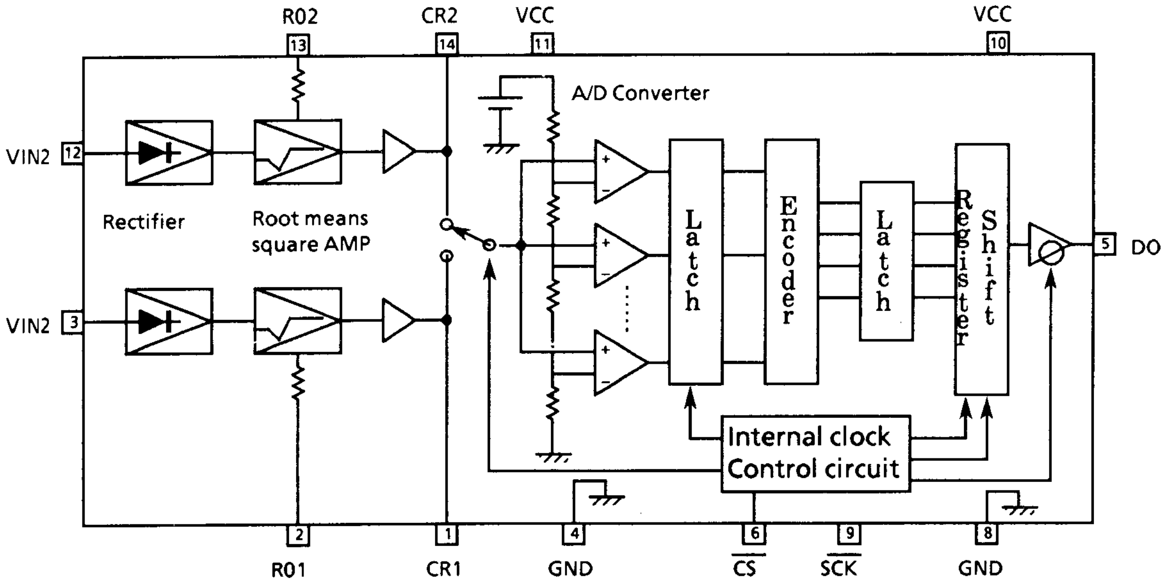
1. Terminal Layout


CR1 1
R01 2
VIN1 3
GND 4
DO 5
CS 6
NC 7
14 CR2
13 R02
12 VIN2
11 VCC
10 VCC
9 SCK
8 GND

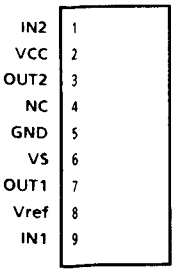
2.Terminal Description

Pin No.	Symbol	I/O	Description
1 14	CR1 CR2	--	This is a terminal to determine the response of the output.
2 13	R01 R02	--	This is a terminal to determine the response of the output.
3 12	VIN1 VIN2	I	Analog signal input terminal
4 8	GND	--	Ground
5	DO	O	Digital ooutput terminal
6	$\overline{CS}$	I	Chip select terminal DO terminal is enable when this terminal is "L'.
9	$\overline{SCK}$	I	Clock signal input The accuracy of the A/D conversion depends on this clock speed.
10 11	VCC	—	+5V

3. Block Diagram


R02
13
CR2
14
VCC
11
VCC
10
A/D Converter
VIN2
12
Rectifier
Root means square AMP
VIN2
3
Latch
Encoder
Latch
Register
Shift
5
DO
Internal clock Control circuit
2
R01
1
CR1
4
GND
6
$\overline{CS}$
9
$\overline{SCK}$
8
GND

■ TA8409S (IC451~454) : DC motor driver

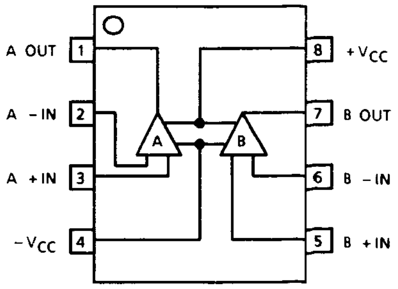

IN2 1
VCC 2
OUT2 3
NC 4
GND 5
VS 6
OUT1 7
Vref 8
IN1 9

Function

Input		Output		Mode
IN1	IN2	OUT1	OUT2	
0	0	∞	∞	STOP
1	0	H	L	OPEN
0	1	L	H	CLOSE
1	1	L	L	BRAKE

∞ : High impedance

■ VC4580LD (IC111,112)
: Dual OP Amp.


A OUT 1
A −IN 2
A +IN 3
−Vcc 4
8 +Vcc
7 B OUT
6 B −IN
5 B +IN
A
B

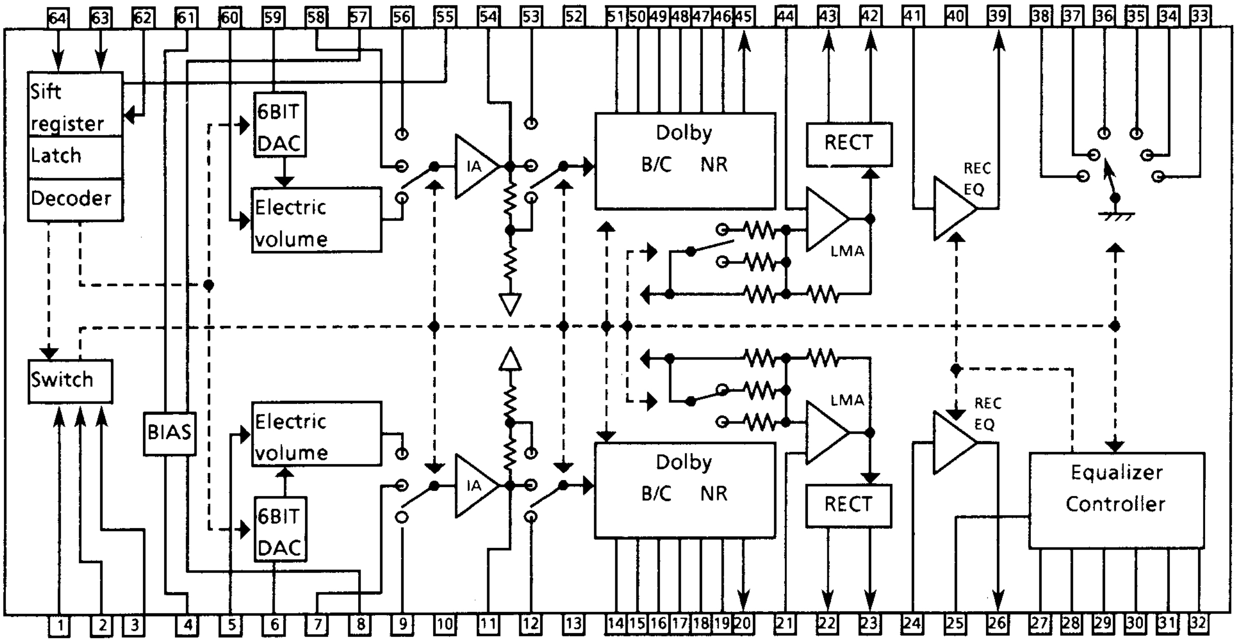
■ HA12155NT (IC201) : Signal processor

Function

REC Equalizer
Dolby B/C
Electric Volume
Level meter

Description

1) REC level automatic control
2) The signal which is not decoded is output from REC OUT during Playback.
3) Standard/high speed, Normal/CrO2/METAL switchng
4) NR-ON/OFF,Dolby B/C,switching

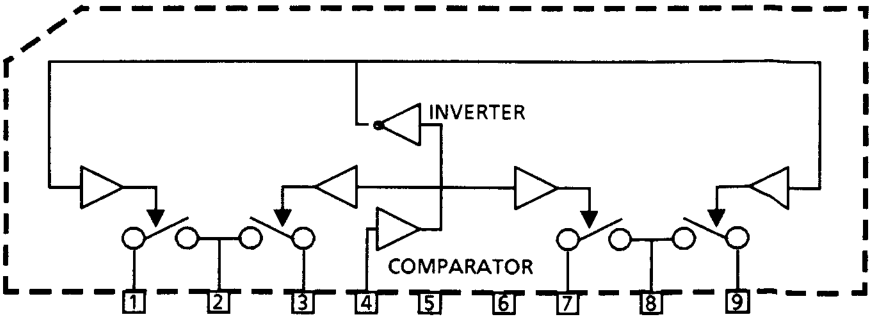

Sift register
Latch
Decoder
6BIT DAC
Electric volume
IA
Dolby B/C NR
RECT
LMA
REC EQ
Switch
BIAS
Electric volume
6BIT DAC
IA
Dolby B/C NR
LMA
RECT
REC EQ
Equalizer Controller
64
63
62
61
60
59
58
57
56
55
54
53
52
51
50
49
48
47
46
45
44
43
42
41
40
39
38
37
36
35
34
33
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

PinNO	Function	PinNO	Function	PinNO	Function
1	NR ON/OFF input	10	Connected to +5V	25	EQ Constant current input
2	NR B/C switching	14,51	Playback signal output	26,39	Recording signal input
3	Not used	15,50	Spectram slanting AMP	27~32	EQ parameter current input
4	Power supply	16,49	Spectram slanting AMP	33~38	EQ parameter select
5,60	Recording signal input	20,45	Output for REC equalizer	40,61	Ground
6,59	Capacitors are connected	21,44	Not used	55	Digital ground
7,58	Deck A playback signal input	22,43	Conected to capacitor	57	Current input for Dolby NR
8	Not used	23,42	Music scan output	62	Strobe signal input
9,56	Deck B playback signal input	24,41	Equalizer input	63	Clock input
11,12,13 54,53,52	Not used	17,18,19 48,47,46	Not used	64	Data input

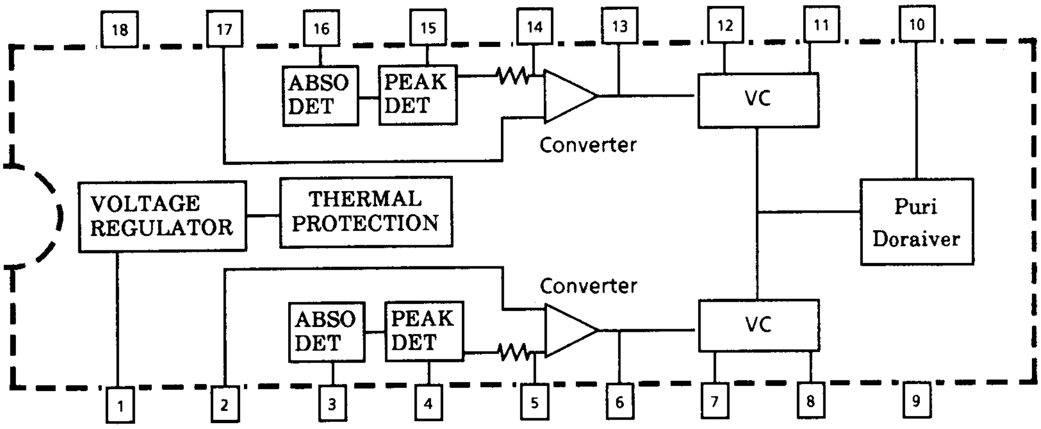
■ μPC1330 HA (IC101) : HEAD SWITCH

Function

	4pin
PB	L
REC	H


INVERTER
COMPARATOR
1
2
3
4
5
6
7
8
9

■ μPC1297CA (IC301) : Dolby HX PRO System IC


18
17
16
15
14
13
12
11
10
ABSO DET
PEAK DET
Converter
VC
VOLTAGE REGULATOR
THERMAL PROTECTION
Puri Doraiver
Converter
ABSO DET
PEAK DET
VC
1
2
3
4
5
6
7
8
9

Disassembly Procedures

■ Top cover removal

1. Remove the screws fastening both sides of the Top cover and rear side.
2. Remove the Top cover spreding both sides and lifting the rear up.

■ Front panel block removal

1. Remove the Top cover.
2. Disconnect the connectors P101,P102,J401,J402,J403.
3. Remove the screw Ⓑ on the bottom .
4. Release the 3 hooks Ⓐ and remove the front panel block.

■ Cassette mechanism block removal

1. Remove the front panel block.
2. Disconnect the connectors J408,J409.
3. Remove the 8 blue colored screws Ⓒ Ⓓ fixing the mechanism.
4. Push the eject button and remove the cassette mechanism block.

NOTE
The cassette mechanism is grounded through the bottom cover, so when checking the operations with the bottom cover removed (especially when checking the signal system), be sure to ground the chassis by using an alligator clip or other suitable gadget. Also, this mechanism is designed for pack sensing, remember that it can not be operated without any tape.

■ Cassette holder removal

1. Remove the cassette mechanism from the front panel block.
2. Remove the dampers.
3. Remove the holder spring from the holder bracket.
4. Remove the cassette holder from the holder bracket.

■ System controller PCB removal

1. Remove the front panel block.
2. Remove the screw Ⓔ. and remove the PCB .

■ Cassette lid removal

1. Open the doors and slide them in the direction of the arrows.

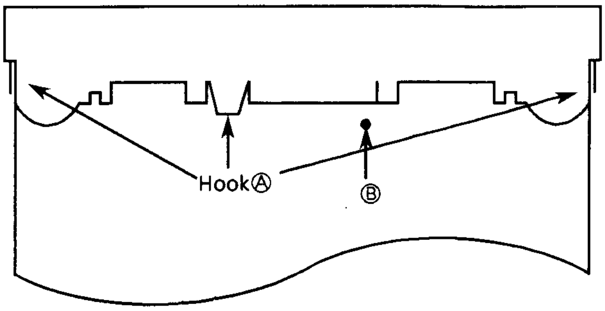


Figure 1 Bottom view of the front panel

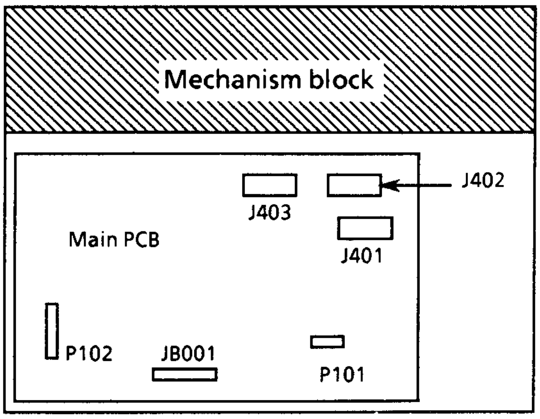


Figure 2 Top view

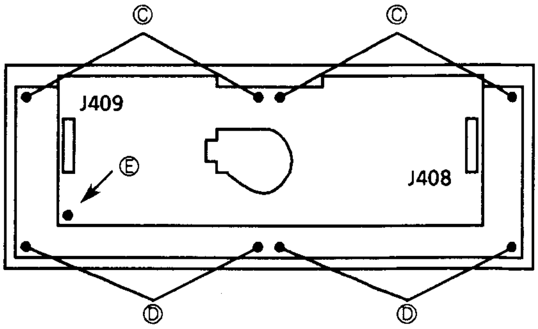


Figure 3 Rear view of the front panel block

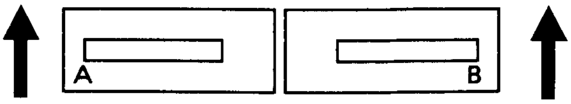


Figure 4 Cassette lids

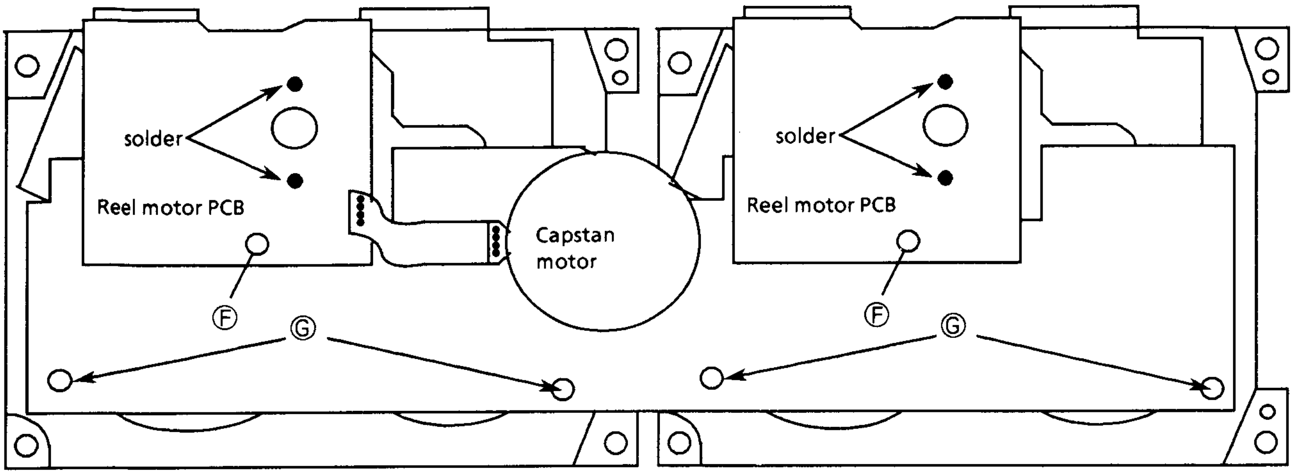


Figure 5 Rear view of the cassette mechanism

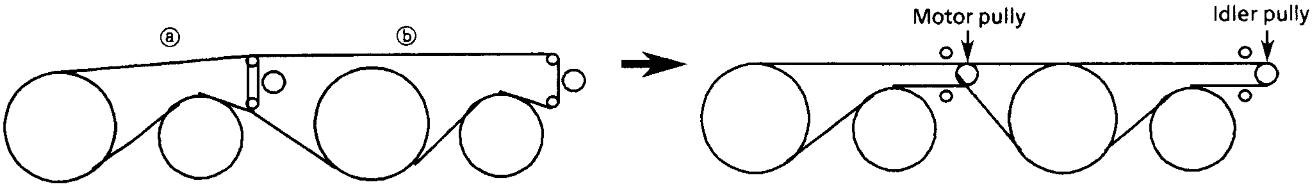


Figure 6 How to put the belts

■ Flywheel removal

1. Remove the mechanism block.
2. Remove the system controller PCB.
3. Remove the reel motor.PCBs.
4. Remove the 4 screws fixing the bracket on which capstan motor is installed.
5. Remove the bracket and the belts.
6. Release the flywheel from the washer .

INSTALL

Install the flywheel and the belts to the mechanism as shown in figure 6. (When putting the belts, put the belt ⓐ first.)

At last, install the bracket with the capstan motor and put the belts on the pullies.

■ CAM switch PCB removal

1. Remove the flywheels.
2. Release the hook fixing the PCB and remove the PCB.

(When installing the CAM switch gears, assemble the PCB so that part Ⓗ meets part Ⓘ.figure7)

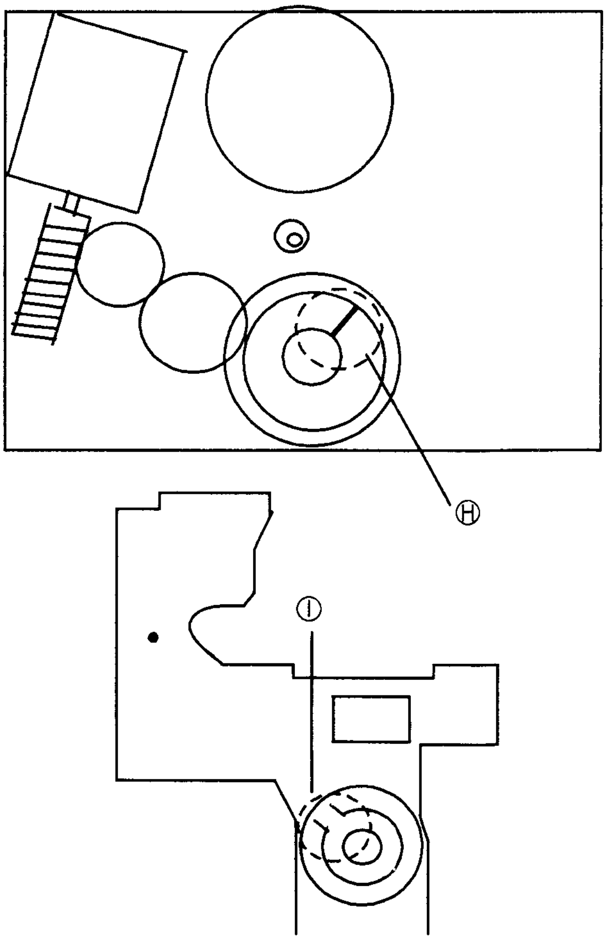


Figure 7 Gear position

■ Head assembly removal

1. Remove the cassette mechanism.
2. Unsolder the flexible wire on the relay PCB, and remove the 2 screws Ⓚ fixing the head assembly(Figure 10).

Notice for installing the head assembly
The direction of the head for forward or reverse mode is switched by the cam gear.
The point of the rib for the head assembly installation differs with the head direction.Figure 8 shows the relation of the gears.

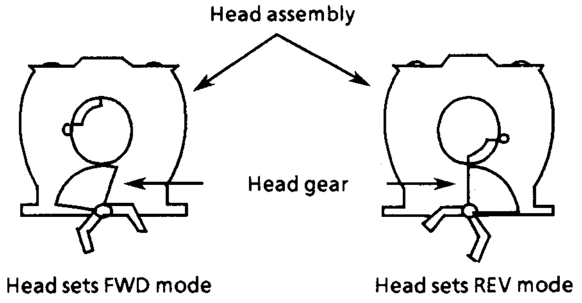

Head assembly
Head gear
Head sets FWD mode
Head sets REV mode

Figure 8 Bottom view of the head assembly

■ Pinch roller arm assembly removal (FWD / REV)

1. Release the pinch roller return spring from the hook (Figure 10).
2. Remove the hook fixing the pinch roller assembly, and remove the pinch roller assembly (Figure 9).

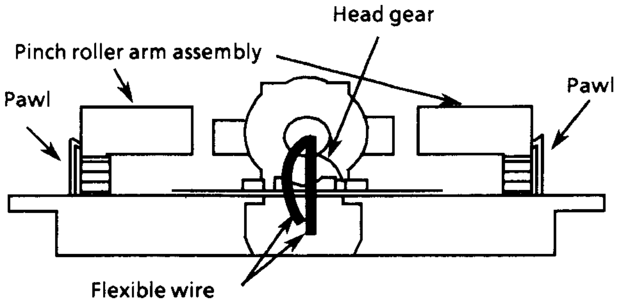

Head gear
Pinch roller arm assembly
Pawl
Pawl
Flexible wire

Figure 9 Bottom view of the cassette mechanism

■ Reel motor PCB removal

1. Remove the mechanism block.
2. Remove the system controller PCB.
3. Remove the screw Ⓕfixing the reel motor PCB (Figure 5).
4. Unsolder the reel motor.
5. Remove the PCB.

■ Reel motor removal

1. Remove the mechanism block.
2. Remove the reel motor PCB.
3. Remove the FR arm assembly (Figure 10).
4. Remove the screws Ⓙ fixing the motor.
5. Release the pawl fixing the motor and remove the motor.

■ Capstan motor removal

1. Remove the mechanism block.
2. Remove the system controller PCB.
3. Remove the reel motor PCB.
4. Remove the 4 screws Ⓖ fixing the bracket (Figure 5).
5. Release the pawl fixing the bracket and remove the capstan motor with the bracket.
6. Remove the 2 screws fixing the motor on the bracket and remove the motor from the bracket.

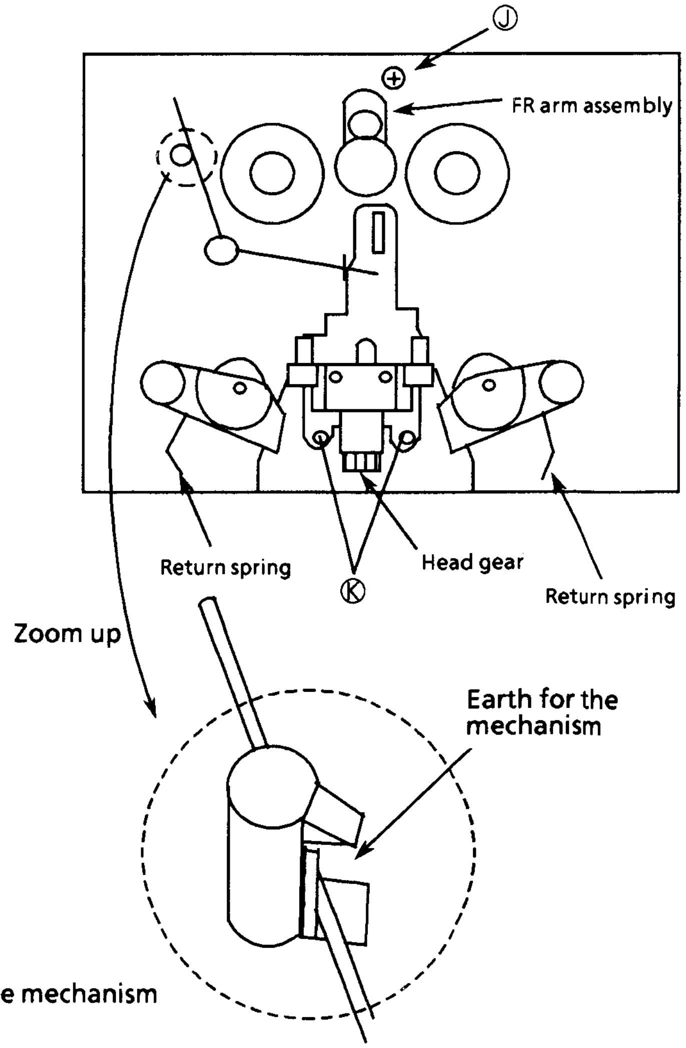

Ⓙ
FR arm assembly
Return spring
Head gear
Ⓚ
Return spring
Zoom up
Earth for the mechanism

Figure 10 Front view of the cassette mechanism

Adjustment Procedures(Cassette Deck)

1. Measuring instruments

Audio frequency signal generator (0dbs output at the 600 ohm output terminal from 50Hz to 20KHz)
Electronic voltmeter
Frequency counter
Wow & Flutter meter
Distortion Meter with band pass filter
Attenuator (600 ohm impedance)
A resistor with 600Ω

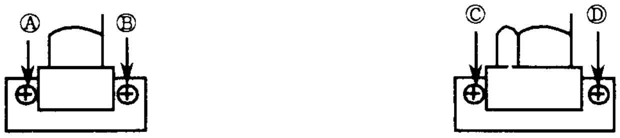
Standard Tape

0dBs = 0.775V

Tape No.	Frequency	Level (Wow & Fkutter)	Purpose
VTT-703L	10kHz	- 10dBs	Head azimuth , Frequency Response
VTT-712	3000Hz	0dBs 0.025%WRMS	Tape Speed , Wow & Flutter
VTT-724	1kHz	- 4dBs	Standard Level
TMT-6447	–	–	Blunk Skip
TMT-6247 , TMT-6237	–	–	Music Scan
TMT-7088	–	–	Recording standard Normal : UR
AC-712	–	–	Recording standard METAL :MA
AC-513	–	–	Recording standard CrO_2 : SA
TW-2111, TW-2121	–	–	Forward / reverse play torque measuring
TW-2231	–	–	Feed forward / rewind torque measuring
C-120 Tape	–	–	Comfirming the tape running

2. Adjustment and repairing the mechanism

Item	Adjustment method	Standard value	Remarks
Head azimuth	Deck A 1. Connect an electronic voltmeter to the VCR REC OUT to playback VTT-703L. 2. Adjust screw Ⓐ so that the indication of the voltmeter becomes maximum when PLAY (▶) is pressed. 3. Adjust screw Ⓑ so that the indication of the voltmeter becomes maximum when PLAY (◀) is pressed. Deck B 4. Adjust screw Ⓒ so that the indication of the voltmeter becomes maximum when PLAY (▶) is pressed. 5. Adjust screw Ⓓ so that the indication of the voltmeter becomes maximum when PLAY (◀) is pressed. 6. After making the adjustment,apply screw lock to prevent screws Ⓐ , Ⓑ , Ⓒ and Ⓓ coming loose .	Maximum	1. **Refer to figure 1.** 2. When the specified characteristic cannot be obtained because of head wear, excessive magnetization, etc., replace the head assembly and adjust the head azimuth. Also, perform the electric adjustment. 3. When there is the difference of more than 3 ~ 4 dB between left and right output levels, replace the head assembly to avoid complaints.
Playback torque	1. Measure the torque in the playback mode by the torqu meter.	26 ~ 67 g-cm	When the standard torque cannot be obtained, replace the FR arm assembly or motor.
Fast forward torque	1. Measure the torque in the fast forward mode by the torqu meter.	80 ~ 200 g-cm	When the standard torque cannot be obtained,replace the FR arm assembly or motor.
Rewind torque	1. Measure the torque in the rewind mode by the torqu meter.	80~ 200 g-cm	When the standard torque cannot be obtained, replace the FR arm assembly or motor.
Wow & flutter	1. Connect the wow & flutter meter to the DOLBY TP(figure 3) and play back VTT-712 . 2. Its reading should be within 0.2% (WTD).	Less than 0.2%	As a complaint may occur if the wow & flutter fluctuates by 0.1% even though it is allowed in the standard, repairing is required.



Deck A

Deck B

Figure 1

3. Electrical Adjustments (Make the following adjustments after adjusting the head azimuth.)

In principle, the adjustments should be made in the following sequence.
Set the NR switch to OFF and the BEAT CUT switch to "1".
Adjustments marked with an asterisk (*) should always be made after the head is replaced **0dBs = 0.775V.**

	Item	Adjustment Method	Adjustment Location	Standard Value	Remarks
1	Tape Speed	1. Connect a frequency counter to the VCR REC OUT and play back VTT-712. 2. Normal speed Adjustment 1) Mechanism B play back deck B to adjust the semi-fixed resistor VR451on ENJ-067-1. 3. Hign-speed adjustment 1) Mechanism A play back deck A and adjust the semi-fixed resistor VR452on ENJ-067-2.	VR451 VR452	3,000 Hz ±10Hz 6,000 Hz ±20Hz	1) Adjust the normal speed first, and perform the hign speed adjustment
* 2	Standard level (Playback Level)	1. Connect an electronic voltmeter to the DOLBY TP (figure 3). Play back VTT-724 (1 kHz : -4dBs) to adjust the semi-fixed resistors.	**Deck A** L: VR111 R: VR112 **Deck B** L: VR141 R: VR142	-5.5dBs (411mV) ±1dB	1) The playback level varies when the head is replaced so should be adjusted. Use an electronic voltmeter with an impedance of 100 kΩ or more.
* 3	Playback Frequency Response	1. Connect an electronic voltmeter to the DOLBY TP (figure 3). 2. Play VTT-703L (10kHz : -10dBs) and adjust semi-fixed resistors to obtain the standard values.	**Deck A** L: VR113 R: VR114 **Deck B** L: VR143 R: VR144	-11.5dBs (206mV) ±3dB	—
* 4	Adjustment HX PRO	1. Connect an electronic voltmeter to the R307(L), R308(R) at either end, and record the no signal Metal tape . 2. Adjust to the liast Volues.	L301(L) L302(R)		—
* 5	Recording Bias Frequency	1. Connect a frequency counter to the BIAS TP(figure 3), and perform a recording to adjust bias frequency.	L351	100 kHz ±5 kHz	Set the BEAT CUT SWITCH to "1".
* 6	Record / Play Frequency Response (Bias current)	1. Supply 1kHz and 12.5kHz with 30mV signals to VCR terminals respectively to record them. 2. Connect an electronic voltmeter to the DOLBY TP (figure 3) to confirm the recorded values. 3. If the values are not satisfied, adjust the semi-fixed resistors and record the signals again to confirm the values.	L : VR301 R : VR302	0±3 dB for 12.5 kHz with 1 kHz as the standard.	**Refer to figure 2 below.** 1) The recording and playback frequency response of a cassette deck are adjusted by adjusting the bias current. 2) Perform the adjustment with normal tape and confirm that the values are within the range for CrO_2 tape.

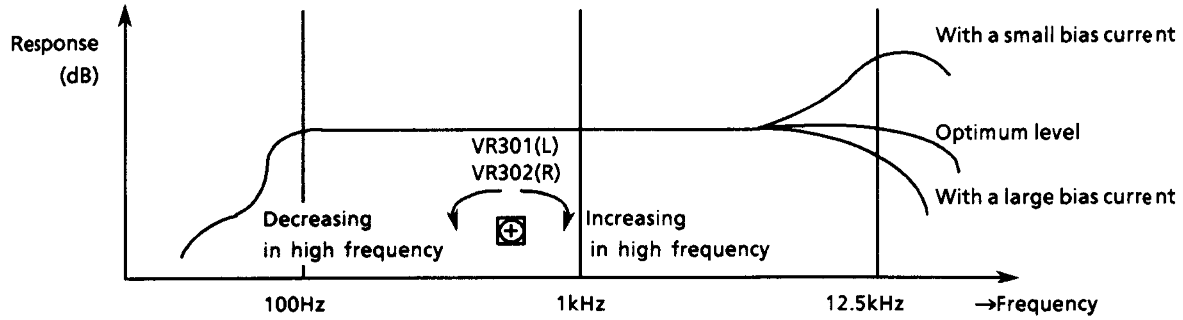
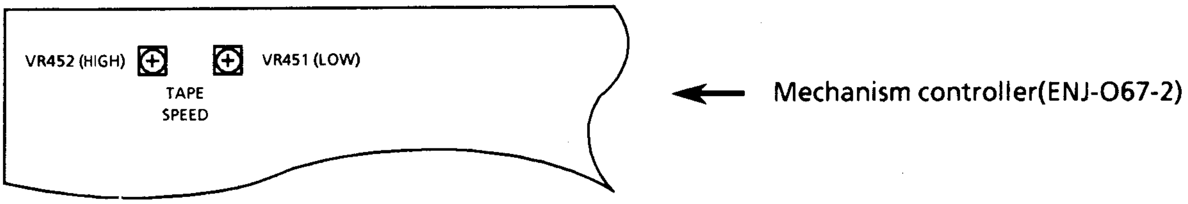


Figure 2

	Item	Adjustment Method	Adjustment Location	Standard Value	Remarks
7	Record / Playback Sensitivity	1. Input a 1 kHz (−8.2dBs: 300mV) signal to VIDEO/AUX terminals and record it on the left and right channels . 2. Connect an electronic voltmeter to the DOLBY TP (figure 3) to confirm the recorded values . 3. If the values are not satisfied , adjust the semi-fixed resistors and record the signals again to confirm the values.	L : VR185 R : VR186	−5.5dBs (411mV)	Adjust with normal tape and make sure that the left / right level difference is 1.0dB or less
8	Erase ratio check	1. Record a music source using the CrO$_2$ tape. 2. Rewind and erase the recorded section. 3. Comfirm nothing can be heard.	–	–	–
9	Auto-stop check	1. Make sure to operate AUTO STOP at the end of tape running and not to operate on the way of the playing.	–	–	–
10	Music Scan	1. Make sure not to work the music scanning operation at the start of tape wind using TMT-6237. 2. Make sure to work the music scanning operation at the end of tape wind using TMT-6247.	–	–	–
11	Blunk Skip	1. Make sure to work the blunk skip operation at the tape wind using TMT-6447.	–	–	–


VR452 (HIGH)
VR451 (LOW)
TAPE SPEED
Mechanism controller(ENJ-067-2)

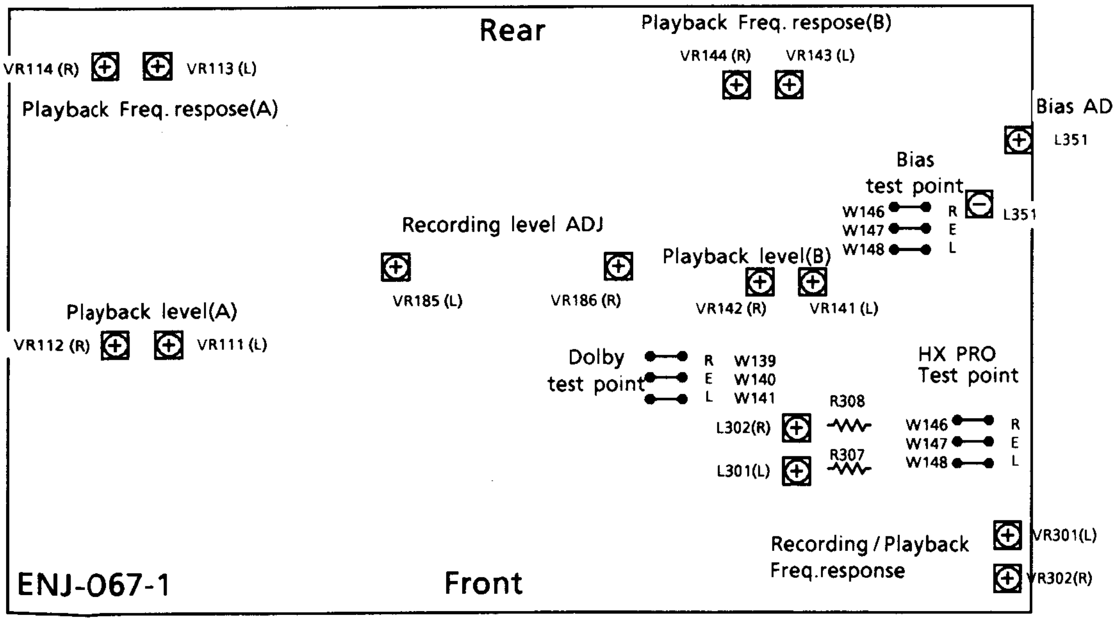
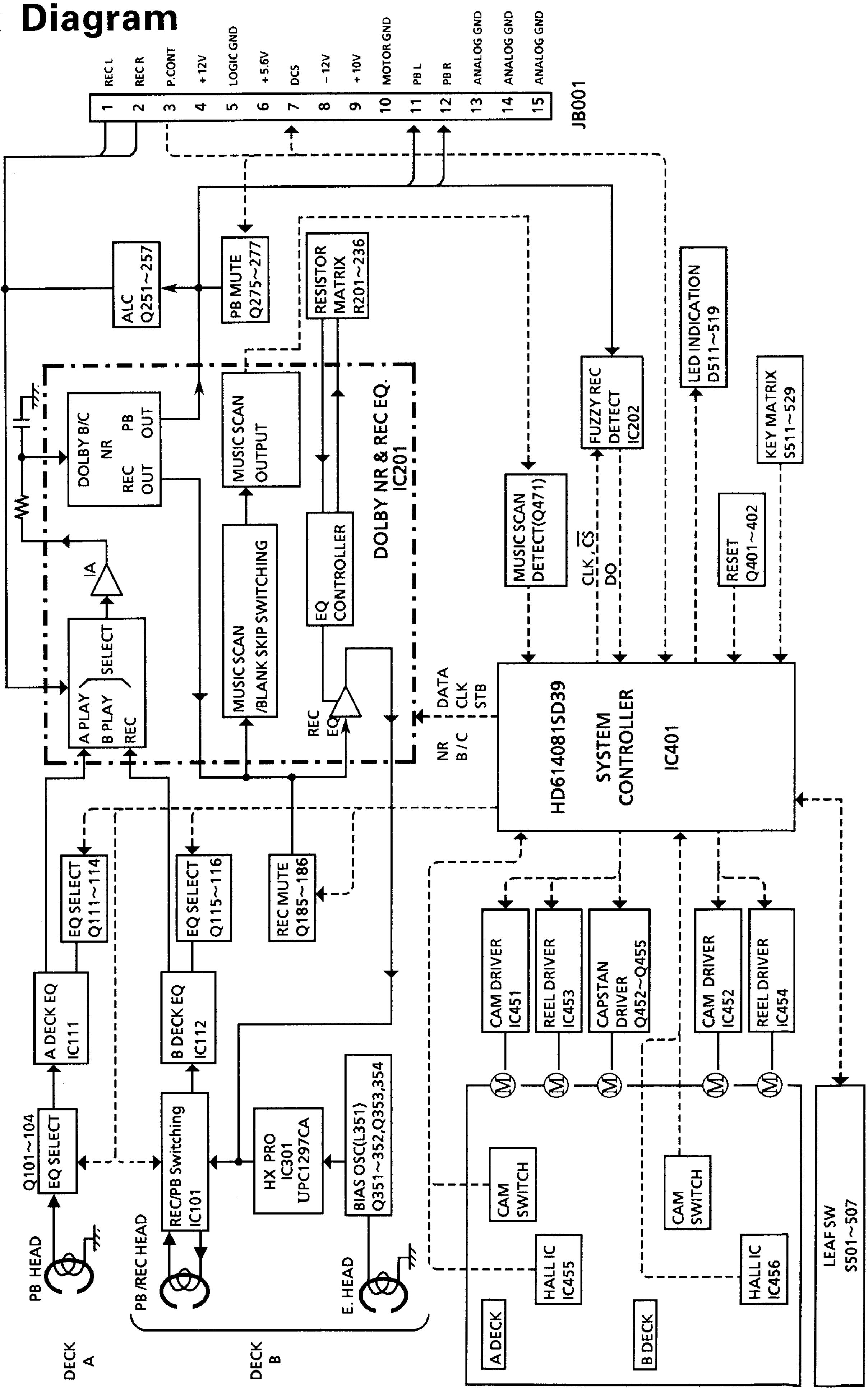

Rear
Playback Freq. respose(B)
VR144 (R)
VR143 (L)
VR114 (R)
VR113 (L)
Playback Freq. respose(A)
Bias ADJ
L351
Bias test point
W146 R
W147 E
W148 L
L351
Recording level ADJ
Playback level(B)
VR185 (L)
VR186 (R)
VR142 (R)
VR141 (L)
Playback level(A)
VR112 (R)
VR111 (L)
Dolby test point
R W139
E W140
L W141
HX PRO Test point
R308
L302(R)
L301(L)
R307
W146 R
W147 E
W148 L
Recording / Playback Freq.response
VR301(L)
VR302(R)
ENJ-067-1
Front

Figure 3

Block Diagram


REC L
REC R
P.CONT
+12V
LOGIC GND
+5.6V
DCS
−12V
+10V
MOTOR GND
PB L
PB R
ANALOG GND
ANALOG GND
ANALOG GND
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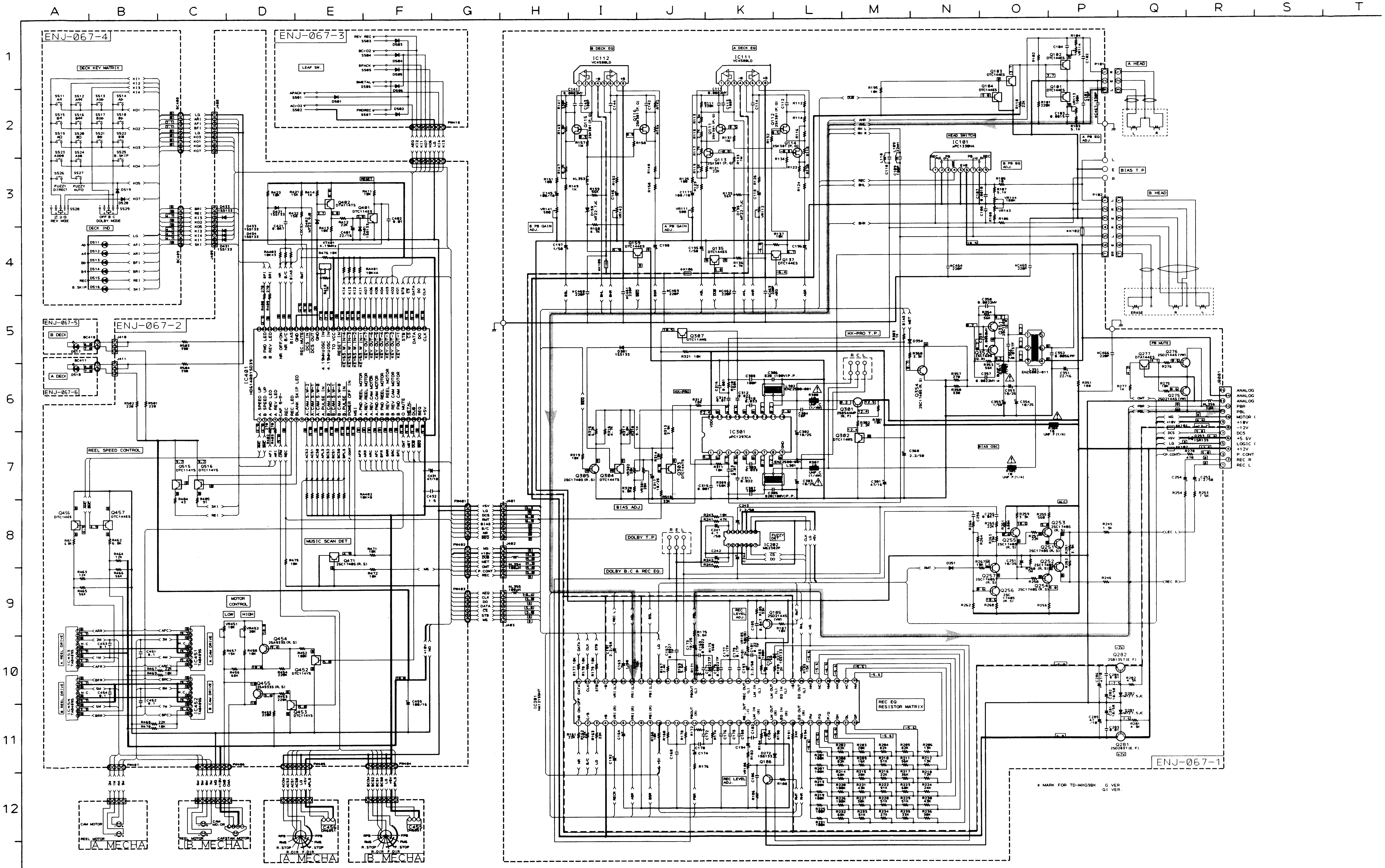
JB001
ALC
Q251~257
PB MUTE
Q275~277
RESISTOR
MATRIX
R201~236
FUZZY REC
DETECT
IC202
LED INDICATION
D511~519
KEY MATRIX
S511~529
DOLBY B/C
NR
REC
OUT
PB
OUT
MUSIC SCAN
OUTPUT
DOLBY NR & REC EQ.
IC201
IA
A PLAY
B PLAY
REC
SELECT
MUSIC SCAN
/BLANK SKIP SWITCHING
EQ
CONTROLLER
REC
EQ
MUSIC SCAN
DETECT(Q471)
CLK, $\overline{CS}$
DO
RESET
Q401~402
DATA
CLK
STB
NR
B/C
HD614081SD39
SYSTEM
CONTROLLER
IC401
EQ SELECT
Q111~114
EQ SELECT
Q115~116
REC MUTE
Q185~186
A DECK EQ
IC111
B DECK EQ
IC112
CAM DRIVER
IC451
REEL DRIVER
IC453
CAPSTAN
DRIVER
Q452~Q455
CAM DRIVER
IC452
REEL DRIVER
IC454
M
M
M
M
M
Q101~104
EQ SELECT
REC/PB Switching
IC101
HX PRO
IC301
UPC1297CA
BIAS OSC(L351)
Q351~352,Q353,354
CAM
SWITCH
HALL IC
IC455
CAM
SWITCH
HALL IC
IC456
A DECK
B DECK
LEAF SW
S501~507
PB HEAD
PB /REC HEAD
E. HEAD
DECK
A
DECK
B

Schematic Diagrams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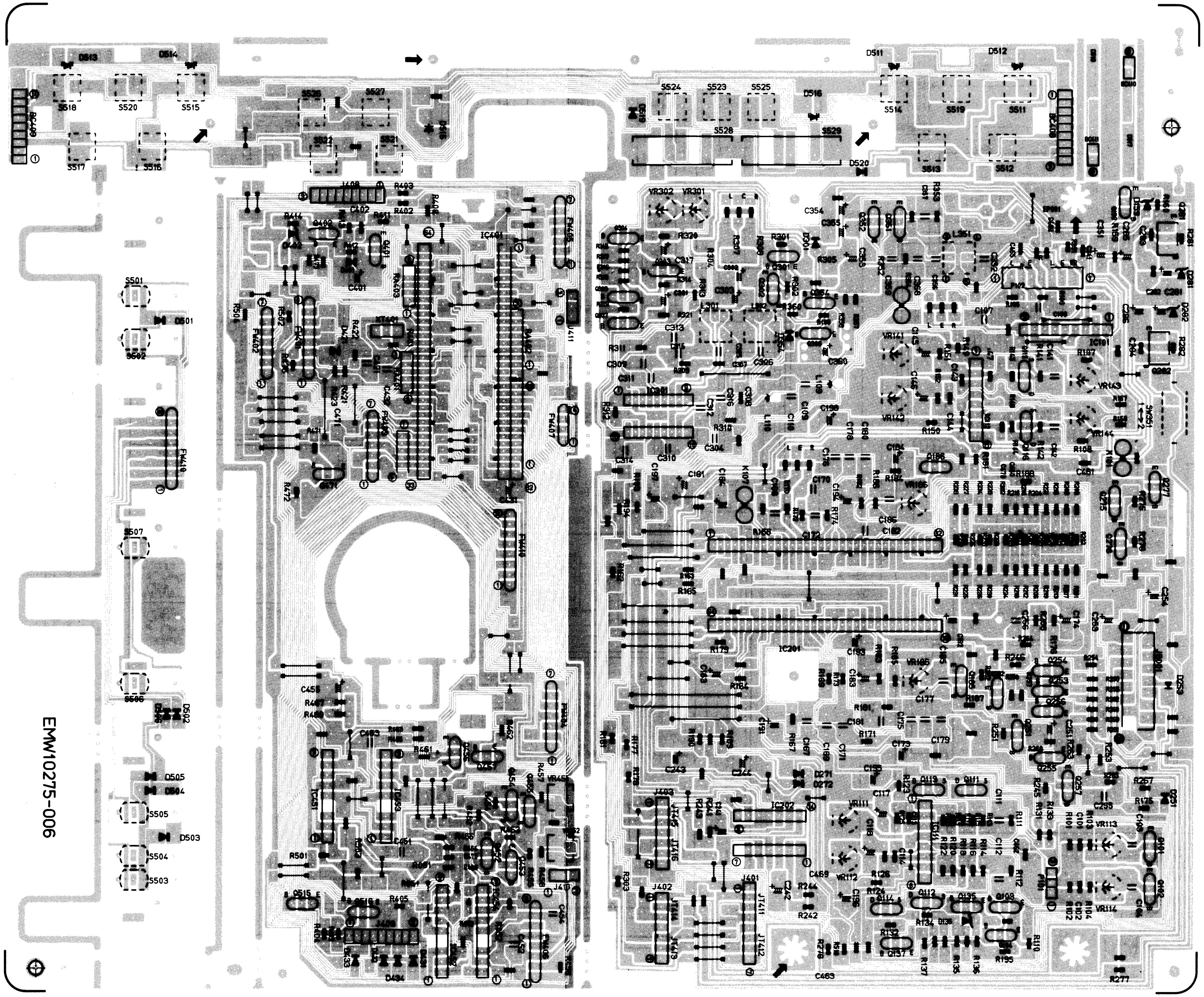
ENJ-067-4
DECK KEY MATRIX
DECK IND
ENJ-067-3
LEAF SW
ENJ-067-5
B DECK
ENJ-067-6
A DECK
ENJ-067-2
RESET
IC401
REEL SPEED CONTROL
MUSIC SCAN DET
MOTOR CONTROL
LOW
HIGH
A MECHA
B MECHA
CAM MOTOR
REEL MOTOR
CAPSTAN MOTOR
B DECK EQ
IC112
A DECK EQ
IC111
B PB GAIN ADJ.
A PB GAIN ADJ.
HEAD SWITCH
IC101
A HEAD
B HEAD
A PB EQ ADJ.
B PB EQ ADJ.
BIAS T.P
ERASE
HX-PRO T.P
IC301
BIAS ADJ
BIAS OSC
DOLBY T.P
DOLBY B.C & REC EQ.
IC202
FUZZY DET
IC201
REC LEVEL ADJ.
REC EQ RESISTOR MATRIX
ALC
PB MUTE
ENJ-067-1
# MARK FOR TD-MXG9BK G VER GI VER.

Notes:

1. ——— indicates +B power supply
2. - - - - indicates –B power supply.
3. ▬▬▬ indicates main signal path.
4. When replacing the parts in the shaded are (■) and those marked with ⚠, be sure to use the designated parts to ensure safety.
5. The design and contents are subject to change without notice.

Printed Circuit Boards

■ **ENJ-067**


EMW10275-006
IC201
IC202
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D520
VR301
VR302
VR111
VR112
VR113
VR114
VR141
VR142
VR143
VR144
VR165
VR166
FW402
FW407
FW410
J401
J402
J403
R501
C463
C469
R277

RX-G90RBK

< PARTS LIST >

Note : All printed circuit boards and its assemblies are not available as service parts.

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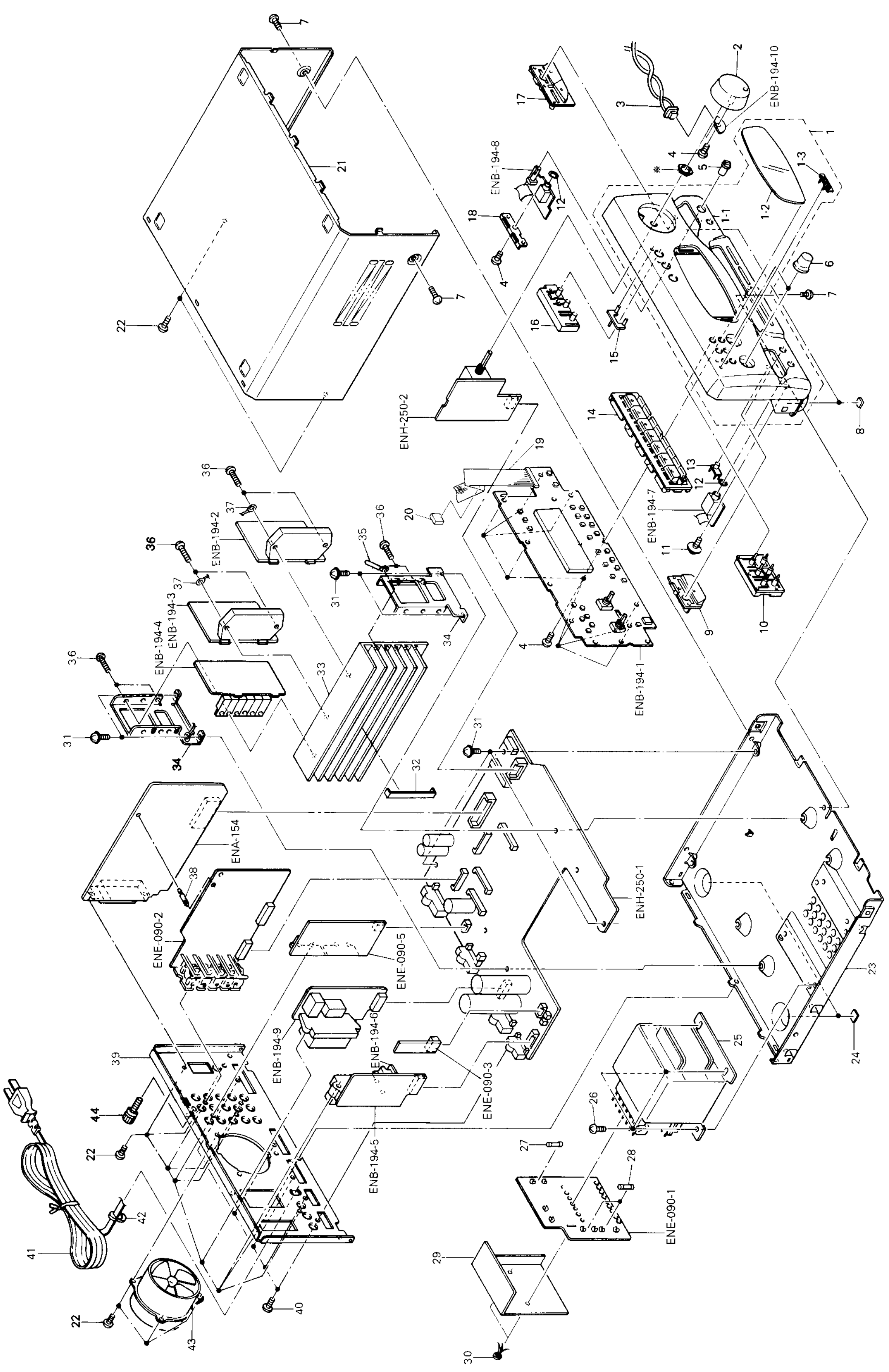
General Exploded View and Parts List 6-2
Printed Circuit Board Ass'y and Parts List 6-4
- ■ENB-194 A Front, Speaker & Amplifier PC Board Ass'y 6-4
- ■ENH-250 A Main & Volume PC Board Ass'y 6-8
- ■ENA-154 H Tuner PC Board Ass'y 6-11
- ■ENE-090 F Source Selector & Power Supply PC Board Ass'y 6-13

Accessories List 6-15
Packing Materials and Part Numbers 6-16

General Exploded View and Parts List

Symbol No.	M	1	M	M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ENB-194-10
ENB-194-8
ENB-194-7
ENB-194-1
ENH-250-2
ENH-250-1
ENB-194-2
ENB-194-3
ENB-194-4
ENA-154
ENE-090-2
ENE-090-5
ENE-090-3
ENB-194-9
ENB-194-6
ENB-194-5
ENE-090-1

※ mark indicates attached parts.

■ Parts List

Symbol No. M 1 M M

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	1	EFP-RXG90RBKE (S	FRONT PANEL ASSY	1		
	1-1	E102622-013	FRONT PANEL	1		
	1-2	E308184-002	WINDOW SCREEN	1		
	1-3	E406971-221	JVC MARK	1		
	2	E308187-004	VOLUME KNOB	1		
	3	EWS142-033	CONNECTOR WIRE ASSY	1	AW990	
	4	SDSF2608Z	SCREW	10		
	5	E407233-001	KNOB	1		
	6	E308189-005	KNOB	2		
	7	SDSG3006M	SCREW	3		
	8	E406855-008	SPACER	2	FRONT FOOT	
	9	E207583-001	PUSH BUTTON ASSY	1		
	10	E207579-001	PUSH BUTTON	1		
	11	E407098-001	SPECIAL SCREW	1		
	12	E407770-001	SPACER	2		
	13	E407232-001	REMOTE LENS	1		
	14	E207580-006	PUSH BUTTON ASSY	1		
	15	E407228-001	INDICATOR	1		
	16	E207578-001	PUSH BUTTON	1		
	17	E207586-002	PUSH BUTTON ASSY	1		
	18	E407234-001	BRACKET	1		
	19	VWF1227-15TTB	FFC CABLE	1	FC901	
	20	E3400-431	FELT SPACER	1		
	21	E207591-001	METAL COVER	1		
	22	E73273-003	SPECIAL SCREW	18		
	23	E102624-001	CHASSIS BASE	1		
	24	E406855-005	SPACER	2	REAR FOOT	
⚠	25	ETP1150-49EA	POWER TRANSFORMER	1	PT001	
	26	E65389-004	SPECIAL SCREW	4		
⚠	27	QMF51A2-1R25S	FUSE	1	F001 (T1.25A / 250V)	
⚠	28	QMF51A2-2R0S	FUSE	2	F101 , F102 (T2A / 250V)	
	29	E308520-003	PROTECT COVER	1		
	30	E48729-008	PLASTIC RIVET	2		
	31	GBSG3008CC	SCREW	7		
	32	EXO090008H05S	SPACER	1		
	33	E308190-003	HEAT SINK	1		
	34	E308191-002	HEAT SINK BRACKET	2		
	35	E72018-001	WIRE CLAMP	1		
	36	SBSG3014CC	SCREW	8		
	37	EWT051-006K	TERMINAL WIRE ASSY	1		
	38	E308544-001	FASTENER	1		
	39	E207589-011	REAR PANEL	1		
	40	SBSG3006CC	SCREW	5		
⚠	41	QMP3900-200	POWER CORD	1		
⚠	42	QHS3876-162	CORD STOPPER	1		
	43	E206880-003	FAN ASSY	1		
	44	E408091-001	GND TERMINAL	1		
	–	E61029-011	NUMBER LABEL	1		
	–	QZL1031-101	SEV LABEL	1		EF
	–	E70027-001	APRROVAL LABEL	1		EN
	–	E75040-046	GI LABEL	1		GI

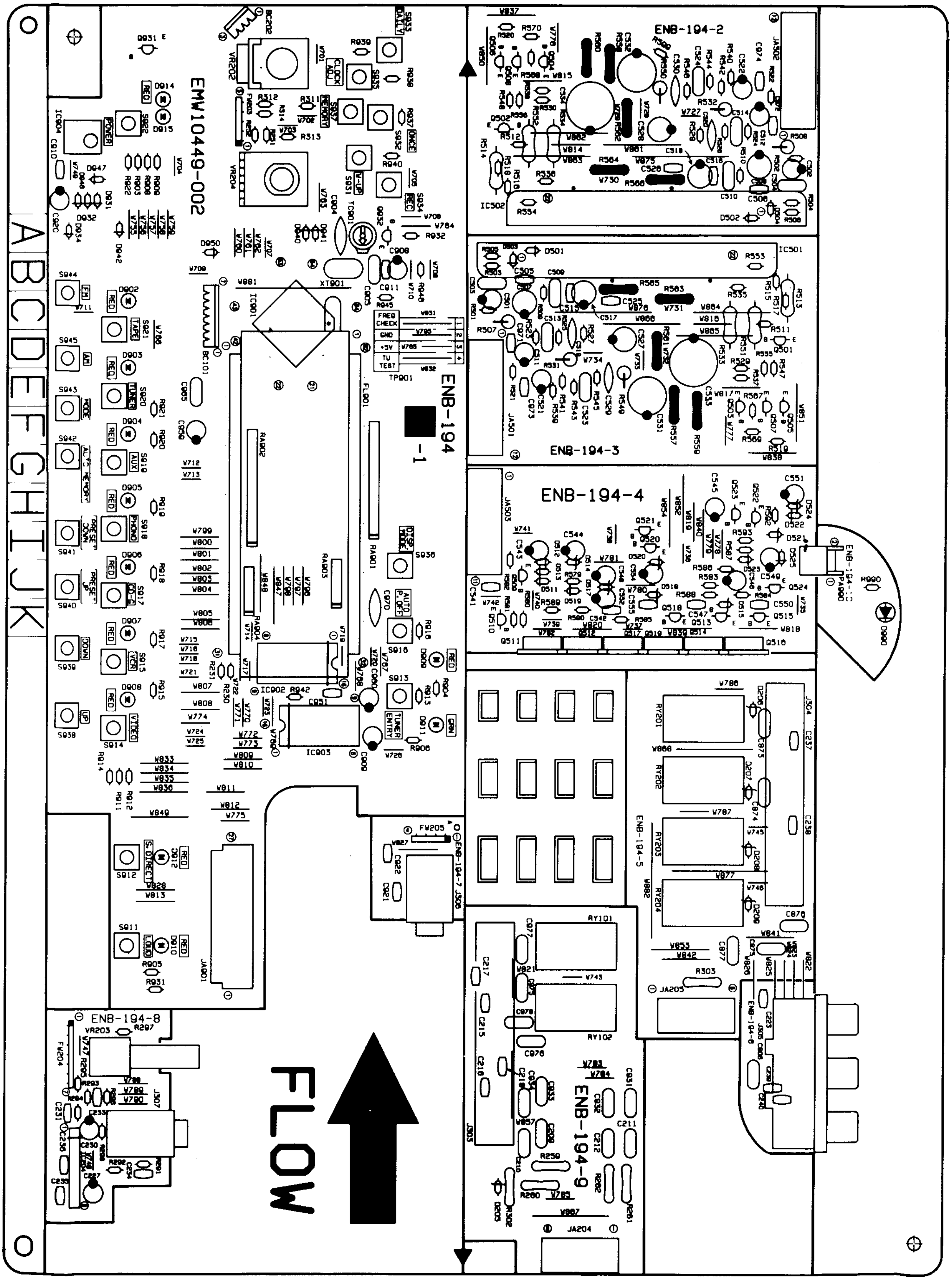
⚠ SAFETY PARTS

The Marks for Designated Areas

EN .... Scandinavia
G ..... Germany
EF .... Continental Europe
GI .... Itary
No mark indicates all areas.

Printed Circuit Board Ass'y and Parts List

■ENB-194 A Front, Speaker & Amplifier PC Board Ass'y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ENB-194-7
ENB-194-8
ENB-194-9
FLOW
A
B
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Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q501	2SA933S(RS)	SI.TRANSIST	
	Q502	2SA933S(RS)	SI.TRANSIST	
	Q503	2SA933S(RS)	SI.TRANSIST	
	Q504	2SA933S(RS)	SI.TRANSIST	
	Q505	2SA933S(RS)	SI.TRANSIST	
	Q506	2SA933S(RS)	SI.TRANSIST	
	Q507	DTC144ES	DIGITAL TRA ROHM	
	Q508	DTC144ES	DIGITAL TRA ROHM	
	Q509	2SC3311A(Q,R)	SI.TRANSIST MATSUSHITA	
	Q510	2SA933S(RS)	SI.TRANSIST	
	Q511	2SB1565(E,F)	SI.TRANSIST ROHM	
	Q512	2SB1565(E,F)	SI.TRANSIST ROHM	
	Q513	2SA933S(RS)	SI.TRANSIST	
	Q514	2SB1565(E,F)	SI.TRANSIST ROHM	
	Q515	2SA933S(RS)	SI.TRANSIST	
	Q516	2SB1565(E,F)	SI.TRANSIST ROHM	
	Q517	2SD2061(F,G)	SI.TRANSIST ROHM	
	Q518	2SA933S(RS)	SI.TRANSIST	
	Q519	2SB1565(E,F)	SI.TRANSIST ROHM	
	Q520	DTA144ES	DIGITAL TRA ROHM	
	Q521	DTC144ES	DIGITAL TRA ROHM	
	Q522	DTA144ES	DIGITAL TRA ROHM	
	Q523	DTC144ES	DIGITAL TRA ROHM	
	Q524	2SC3311A(Q,R)	SI.TRANSIST MATSUSHITA	
	Q931	DTC114YS	DIGITAL TRA ROHM	
	Q932	DTC114YS	DIGITAL TRA ROHM	

⚠ : SAFETY PARTS

I.C.s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC204	BA15218N	I.C(MONO-AN ROHM	
	IC501	STK400-040	I.C(HYBRID) SANYO	
	IC502	STK400-040	I.C(HYBRID) SANYO	
	IC901	MN172412JYL	I.C.	
	IC902	TC74HC595AP	I.C(DIGI-MO TOSHIBA	
	IC903	TC74HC595AP	I.C(DIGI-MO TOSHIBA	
	IC904	GP1U901X	INFRARED DE SHARP	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D205	MTZ24JC	ZENER DIODE ROHM	
	D206	MTZ24JC	ZENER DIODE ROHM	
	D207	MTZ24JC	ZENER DIODE ROHM	
	D208	MTZ24JC	ZENER DIODE ROHM	
	D209	MTZ24JC	ZENER DIODE ROHM	
	D501	1SS119	SI.DIODE	
	D502	1SS119	SI.DIODE	
	D503	1SS119	SI.DIODE	
	D504	1SS119	SI.DIODE	
	D511	1SS119	SI.DIODE	
	D512	MTZ10JC	ZENER DIODE ROHM	
	D513	1SS119	SI.DIODE	
	D514	MTZ15JC	ZENER DIODE ROHM	
	D515	RD13JSB3	ZENER DIODE NEC	
	D517	MTZ6.2JC	ZENER DIODE ROHM	
	D518	MTZ11JC	ZENER DIODE ROHM	
	D519	1SS119	SI.DIODE	
	D520	MTZ15JC	ZENER DIODE ROHM	
	D521	RD12JSB3	ZENER DIODE NEC	
	D522	1SS119	SI.DIODE	
	D523	1SS119	SI.DIODE	
	D524	MTZ15JC	ZENER DIODE ROHM	
	D525	1SS119	SI.DIODE	
	D902	SLR-342VC3F	L.E.D. ROHM	
	D903	SLR-342VC3F	L.E.D. ROHM	
	D904	SLR-342VC3F	L.E.D. ROHM	
	D905	SLR-342VC3F	L.E.D. ROHM	
	D906	SLR-342VC3F	L.E.D. ROHM	
	D907	SLR-342VC3F	L.E.D. ROHM	
	D908	SLR-342VC3F	L.E.D. ROHM	
	D909	SLR-342VC3F	L.E.D. ROHM	
	D910	SLR-342VC3F	L.E.D. ROHM	
	D911	SLR-342MCA47	L.E.D. ROHM	
	D912	SLR-342VC3F	L.E.D. ROHM	
	D914	SLR-342VC3F	L.E.D. ROHM	
	D915	SLR-342VC3F	L.E.D. ROHM	
	D934	1SS119	SI.DIODE	
	D940	1SS119	SI.DIODE	
	D941	1SS119	SI.DIODE	
	D942	1SS119	SI.DIODE	
	D946	1SS119	SI.DIODE	
	D947	1SS119	SI.DIODE	
	D950	1SS119	SI.DIODE	
	D990	LN282RPX	L.E.D. MATSUSHITA	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C209	QFV31HJ-224AZM	0.22MF 50V T.FILM	
	C210	QFV31HJ-224AZM	0.22MF 50V T.FILM	
	C211	QFV31HJ-474AZM	0.47MF 50V T.FILM	
	C212	QFV31HJ-474AZM	0.47MF 50V T.FILM	
	C215	QCGB1HK-102	1000PF 50V CER.CAPACI	
	C216	QCGB1HK-102	1000PF 50V CER.CAPACI	
	C217	QCGB1HK-102	1000PF 50V CER.CAPACI	
	C218	QCGB1HK-102	1000PF 50V CER.CAPACI	
	C227	QER51CM-106G	10MF 16V AL E.CAPAC	
	C230	QER51CM-106G	10MF 16V AL E.CAPAC	
	C231	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C233	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C234	QCGB1HK-102	1000PF 50V CER.CAPACI	
	C235	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C236	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C237	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C238	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C239	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C240	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C501	EEZ5009-106	10MF AL E.CAPAC	
	C502	EEZ5009-106	10MF AL E.CAPAC	
	C503	QFN81HJ-392	3900PF 50V METAL.MYLA	
	C504	QFN81HJ-392	3900PF 50V METAL.MYLA	
	C505	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C506	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C507	EEZ5009-106	10MF AL E.CAPAC	
	C508	EEZ5009-106	10MF AL E.CAPAC	
	C509	QFN81HJ-333	0.033MF 50V MYLAR CAPA	
	C510	QFN81HJ-333	0.033MF 50V MYLAR CAPA	
	C511	EEZ5009-106	10MF AL E.CAPAC	
	C512	EEZ5009-106	10MF AL E.CAPAC	
	C513	QFLB1HJ-101	100PF 50V MYLAR CAPA	
	C514	QFLB1HJ-101	100PF 50V MYLAR CAPA	
	C515	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C516	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C517	EEZ5009-106	10MF AL E.CAPAC	
	C518	EEZ5009-106	10MF AL E.CAPAC	
	C519	QCS21HJ-470	47PF 50V CER.CAPACI	
	C520	QCS21HJ-470	47PF 50V CER.CAPACI	
	C521	EEZ5009-106	10MF AL E.CAPAC	
	C522	EEZ5009-106	10MF AL E.CAPAC	
	C523	QFLB1HJ-101	100PF 50V MYLAR CAPA	
	C524	QFLB1HJ-101	100PF 50V MYLAR CAPA	
	C525	QCBB1HK-221Y	220PF 50V CER.CAPACI	
	C526	QCBB1HK-221Y	220PF 50V CER.CAPACI	
	C527	EEZ5009-475	4.7MF E.CAPACITO	
	C528	EEZ5009-475	4.7MF E.CAPACITO	
	C529	QCS21HJ-470	47PF 50V CER.CAPACI	
	C530	QCS21HJ-470	47PF 50V CER.CAPACI	
	C531	QETB1VM-227M	220MF 35V ELECTRO	
	C532	QETB1VM-227M	220MF 35V ELECTRO	
	C533	QETB1VM-477M	470MF 35V E.CAPACITO	
	C534	QETB1VM-477M	470MF 35V E.CAPACITO	
	C541	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C542	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C543	QETB1EM-106	10MF 25V AL E.CAPAC	
	C544	QETB1CM-226	22MF 16V E.CAPACITO	
	C545	QETB1CM-226	22MF 16V E.CAPACITO	
	C546	QETB1CM-226	22MF 16V E.CAPACITO	
	C547	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C548	QETB1CM-226	22MF 16V E.CAPACITO	
	C549	QETB1EM-106	10MF 25V AL E.CAPAC	
	C550	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C551	QETB1EM-106	10MF 25V AL E.CAPAC	
	C552	QETB1AM-476	47MF 10V E.CAPACITO	
	C554	QETB1CM-226	22MF 16V E.CAPACITO	
	C555	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C806	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C873	QFN81HJ-822	8200PF 50V METAL.MYLA	
	C874	QFN81HJ-822	8200PF 50V METAL.MYLA	
	C875	QFN81HJ-822	8200PF 50V METAL.MYLA	
	C876	QFN81HJ-822	8200PF 50V METAL.MYLA	
	C877	QFN81HJ-103	0.01MF 50V METAL.MYLA	
	C904	QCT26CH-330	33PF 50V CER.CAPACI	
	C905	QCZ0202-155	1.5MF 25V CER.RESIST	
	C908	QETB1CM-226	22MF 16V E.CAPACITO	
	C909	QEK51HM-105G	1MF 50V AL E.CAPAC	
	C910	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C911	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C921	QCBB1HK-471Y	470PF 50V CER.CAPACI	
	C922	QCBB1HK-471Y	470PF 50V CER.CAPACI	
	C931	QFV31HJ-474AZM	0.47MF 50V T.FILM	
	C932	QFV31HJ-474AZM	0.47MF 50V T.FILM	
	C933	QFV31HJ-224AZM	0.22MF 50V T.FILM	
	C934	QFV31HJ-224AZM	0.22MF 50V T.FILM	
	C951	QCBB1HK-561Y	560PF 50V CER.CAPACI	
	C959	QEK51HM-475GE	4.7MF 50V E.CAPACITO	
	C960	QEK51HM-475GE	4.7MF 50V E.CAPACITO	
	C965	QCZ0202-155	1.5MF 25V CER.RESIST	
	C970	QCF31HP-102Z	1000PF 50V CER.CAPACI	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C971	QCBB1HK-221Y	220PF 50V CER.CAPACI	
	C972	QCBB1HK-221Y	220PF 50V CER.CAPACI	
	C973	QCBB1HK-221Y	220PF 50V CER.CAPACI	
	C974	QCBB1HK-221Y	220PF 50V CER.CAPACI	
	C975	QFLB1HJ-822	8200PF 50V MYLAR CAPA	
	C976	QFLB1HJ-822	8200PF 50V MYLAR CAPA	
	C977	QFLB1HJ-822	8200PF 50V MYLAR CAPA	
	C978	QFLB1HJ-822	8200PF 50V MYLAR CAPA	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R230	QRD161J-470	47 1/6W CARBON RES	
	R231	QRD167J-620	62 1/6W CARBON RES	
	R251	QRD161J-821	820 1/6W CARBON RES	
	R252	QRD161J-821	820 1/6W CARBON RES	
⚠	R259	QRD14CJ-100SX	10 1/4W UNF.CARBON	
⚠	R260	QRD14CJ-100SX	10 1/4W UNF.CARBON	
⚠	R261	QRD14CJ-100SX	10 1/4W UNF.CARBON	
⚠	R262	QRD14CJ-100SX	10 1/4W UNF.CARBON	
	R291	QRD167J-102	1K 1/6W CARBON RES	
	R292	QRD161J-103	10K 1/6W CARBON RES	
	R293	QRD161J-104	100K 1/6W CARBON RES	
	R294	QRD161J-331	330 1/6W CARBON RES	
	R295	QRD161J-681	680 1/6W CARBON RES	
	R296	QRD161J-104	100K 1/6W CARBON RES	
	R297	QRD167J-562	5.6K 1/6W CARBON RES	
	R298	QRD167J-562	5.6K 1/6W CARBON RES	
⚠	R302	QRD14CJ-100SX	10 1/4W UNF.CARBON	
⚠	R303	QRD14CJ-100SX	10 1/4W UNF.CARBON	
	R501	QRD161J-104	100K 1/6W CARBON RES	
	R502	QRD161J-104	100K 1/6W CARBON RES	
	R503	QRD167J-102	1K 1/6W CARBON RES	
	R504	QRD167J-102	1K 1/6W CARBON RES	
	R505	QRD161J-104	100K 1/6W CARBON RES	
	R506	QRD161J-104	100K 1/6W CARBON RES	
	R507	ERD004J-821Z	820 CARBON RES	
	R508	ERD004J-821Z	820 CARBON RES	
	R509	QRD161J-473	47K 1/6W CARBON RES	
	R510	QRD161J-473	47K 1/6W CARBON RES	
	R511	QRD161J-473	47K 1/6W CARBON RES	
	R512	QRD161J-473	47K 1/6W CARBON RES	
⚠	R513	QRX012J-R22AM	0.22 1W METAL FILM	
⚠	R514	QRX012J-R22AM	0.22 1W METAL FILM	
	R515	QRD167J-223	22K 1/6W CARBON RES	
	R516	QRD167J-223	22K 1/6W CARBON RES	
	R517	QRD167J-223	22K 1/6W CARBON RES	
	R518	QRD167J-223	22K 1/6W CARBON RES	
	R519	QRD161J-103	10K 1/6W CARBON RES	
	R520	QRD161J-103	10K 1/6W CARBON RES	
	R521	QRD161J-104	100K 1/6W CARBON RES	
	R522	QRD161J-104	100K 1/6W CARBON RES	
	R523	QRD167J-102	1K 1/6W CARBON RES	
	R524	QRD167J-102	1K 1/6W CARBON RES	
	R525	QRD161J-104	100K 1/6W CARBON RES	
	R526	QRD161J-104	100K 1/6W CARBON RES	
	R527	QRD161J-104	100K 1/6W CARBON RES	
	R528	QRD161J-104	100K 1/6W CARBON RES	
	R529	QRD167J-102	1K 1/6W CARBON RES	
	R530	QRD167J-102	1K 1/6W CARBON RES	
	R531	ERD004J-102Z	1K NETWORK RE	
	R532	ERD004J-102Z	1K NETWORK RE	
⚠	R533	QRX012J-R22AM	0.22 1W METAL FILM	
⚠	R534	QRX012J-R22AM	0.22 1W METAL FILM	
	R535	QRD167J-223	22K 1/6W CARBON RES	
	R536	QRD167J-223	22K 1/6W CARBON RES	
	R537	QRD167J-223	22K 1/6W CARBON RES	
	R538	QRD167J-223	22K 1/6W CARBON RES	
	R539	QRD161J-104	100K 1/6W CARBON RES	
	R540	QRD161J-104	100K 1/6W CARBON RES	
	R541	QRD167J-102	1K 1/6W CARBON RES	
	R542	QRD167J-102	1K 1/6W CARBON RES	
	R543	QRD161J-104	100K 1/6W CARBON RES	
	R544	QRD161J-104	100K 1/6W CARBON RES	
	R545	QRD161J-104	100K 1/6W CARBON RES	
	R546	QRD161J-104	100K 1/6W CARBON RES	
	R547	QRD167J-102	1K 1/6W CARBON RES	
	R548	QRD167J-102	1K 1/6W CARBON RES	
	R549	ERD004J-102Z	1K NETWORK RE	
	R550	ERD004J-102Z	1K NETWORK RE	
⚠	R551	QRX012J-R22AM	0.22 1W METAL FILM	
⚠	R552	QRX012J-R22AM	0.22 1W METAL FILM	
	R553	QRD167J-223	22K 1/6W CARBON RES	
	R554	QRD167J-223	22K 1/6W CARBON RES	
	R555	QRD167J-223	22K 1/6W CARBON RES	
	R556	QRD167J-223	22K 1/6W CARBON RES	
⚠	R557	QRZ0077-101	100 1/4W FUSIBLE RE	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
⚠	R558	QRZ0077-101	100 1/4W FUSIBLE RE	
⚠	R559	QRZ0077-101	100 1/4W FUSIBLE RE	
⚠	R560	QRZ0077-101	100 1/4W FUSIBLE RE	
⚠	R561	QRZ0077-4R7	4.7 1/4W FUSE RESIS	
⚠	R562	QRZ0077-4R7	4.7 1/4W FUSE RESIS	
⚠	R563	QRZ0077-4R7	4.7 1/4W FUSE RESIS	
⚠	R564	QRZ0077-4R7	4.7 1/4W FUSE RESIS	
⚠	R565	QRZ0077-100	10 1/4W FUSIBLE RE	
⚠	R566	QRZ0077-100	10 1/4W FUSIBLE RE	
	R567	QRD161J-103	10K 1/6W CARBON RES	
	R568	QRD161J-103	10K 1/6W CARBON RES	
	R569	QRD161J-103	10K 1/6W CARBON RES	
	R570	QRD161J-103	10K 1/6W CARBON RES	
	R579	QRD161J-103	10K 1/6W CARBON RES	
	R580	QRD167J-332	3.3K 1/6W CARBON RES	
	R581	QRD167J-332	3.3K 1/6W CARBON RES	
	R582	QRD161J-472	4.7K 1/6W CARBON RES	
	R583	QRD161J-222	2.2K 1/6W CARBON RES	
	R584	QRD167J-152	1.5K 1/6W CARBON RES	
	R585	QRD161J-392	3.9K 1/6W CARBON RES	
	R586	QRD161J-222	2.2K 1/6W CARBON RES	
	R587	QRD161J-472	4.7K 1/6W CARBON RES	
	R588	QRD167J-153	15K 1/6W CARBON RES	
	R589	QRD161J-100	10 1/6W CARBON RES	
	R590	QRD161J-100	10 1/6W CARBON RES	
	R592	QRD161J-472	4.7K 1/6W CARBON RES	
	R593	QRD161J-103	10K 1/6W CARBON RES	
	R903	QRD161J-821	820 1/6W CARBON RES	
	R904	QRD161J-561	560 1/6W CARBON RES	
	R905	QRD167J-471	470 1/6W CARBON RES	
	R906	QRD161J-391	390 1/6W CARBON RES	
	R908	QRD161J-331	330 1/6W CARBON RES	
	R909	QRD161J-331	330 1/6W CARBON RES	
	R911	QRD161J-103	10K 1/6W CARBON RES	
	R912	QRD161J-103	10K 1/6W CARBON RES	
	R913	QRD161J-103	10K 1/6W CARBON RES	
	R914	QRD167J-272	2.7K 1/6W CARBON RES	
	R915	QRD167J-272	2.7K 1/6W CARBON RES	
	R916	QRD167J-272	2.7K 1/6W CARBON RES	
	R917	QRD161J-432	4.3K 1/6W CARBON RES	
	R918	QRD161J-432	4.3K 1/6W CARBON RES	
	R919	QRD167J-822	8.2K 1/6W CARBON RES	
	R920	QRD167J-822	8.2K 1/6W CARBON RES	
	R921	QRD161J-243	24K 1/6W CARBON RES	
	R922	QRD161J-243	24K 1/6W CARBON RES	
	R932	QRD167J-223	22K 1/6W CARBON RES	
	R937	QRD161J-103	10K 1/6W CARBON RES	
	R938	QRD161J-103	10K 1/6W CARBON RES	
	R939	QRD161J-103	10K 1/6W CARBON RES	
	R940	QRD161J-103	10K 1/6W CARBON RES	
	R942	QRD167J-223	22K 1/6W CARBON RES	
	R945	QRD161J-473	47K 1/6W CARBON RES	
	R946	QRD161J-473	47K 1/6W CARBON RES	
	R990	QRD161J-392	3.9K 1/6W CARBON RES	
	RA901	QRB169J-104	100K 1/10W RESISTOR A	
	RA902	QRB169J-104	100K 1/10W RESISTOR A	
	RA903	QRB069J-104	100K 1/10W NETWORK RE	
	RA904	QRB069J-104	100K 1/10W NETWORK RE	
	VR202	QVGA81W-E15D	100K VARIABLE R	
	VR203	QVAB80B-E54C	50K VARIABLE R	
	VR204	QVJB81A-E53C	5K VARIABLE R	

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		VYH7653-001	SPRING	
	J303	EMB90TV-804A	SPEAKER TER	
	J304	EMB90YV-402A	SPEAKER TER	
	J305	EMN00YV-316A	PIN JACK	
	J306	QMS3L40-ED0H	PIN JACK	
	J307	QMS3L40-ED0H	PIN JACK	
	S911	ESP0001-023M	TACT SWITCH(AUTO LOUDNESS)	
	S912	ESP0001-023M	TACT SWITCH(SOURCE DIRECT)	
	S913	ESP0001-023M	TACT SWITCH(TUNER ENTRY)	
	S914	ESP0001-023M	TACT SWITCH(VIDEO)	
	S915	ESP0001-023M	TACT SWITCH(VCR)	
	S916	ESP0001-023M	TACT SWITCH(AUT POWER OFF)	
	S917	ESP0001-023M	TACT SWITCH(CD/CDG)	
	S918	ESP0001-023M	TACT SWITCH(PHONO)	
	S919	ESP0001-023M	TACT SWITCH(AUX)	
	S920	ESP0001-023M	TACT SWITCH(TUNER)	
	S921	ESP0001-023M	TACT SWITCH(TAPE)	
	S922	ESP0001-023M	TACT SWITCH(POWER)	
	S931	ESP0001-023M	TACT SWITCH(WAKE UP/SLEEP)	
	S932	ESP0001-023M	TACT SWITCH(ONCE TIMER)	
	S933	ESP0001-023M	TACT SWITCH(DAILY TIMER)	
	S934	ESP0001-023M	TACT SWITCH(REC. TIMER)	
	S935	ESP0001-023M	TACT SWITCH(CLOCK ADJ)	
	S936	ESP0001-023M	TACT SWITCH(DISPLAY MODE)	
	S937	ESP0001-023M	TACT SWITCH(MEMORY)	

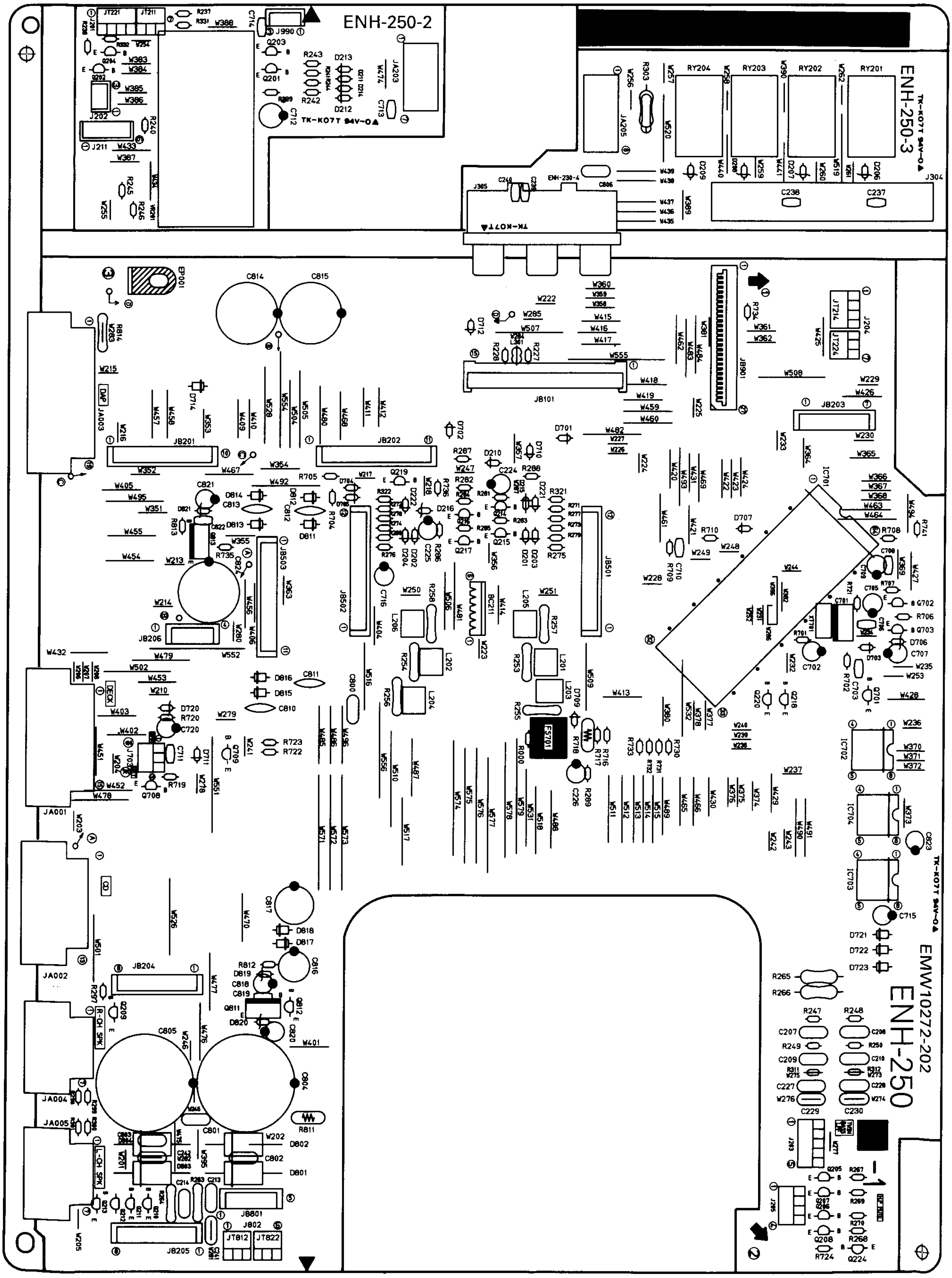
⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	S938	ESP0001-023M	TACT SWITCH(UP)	
	S939	ESP0001-023M	TACT SWITCH(DOWN)	
	S940	ESP0001-023M	TACT SWITCH(PRESET UP)	
	S941	ESP0001-023M	TACT SWITCH(PRESET DOWN)	
	S942	ESP0001-023M	TACT SWITCH(PRESET SCAN)	
	S943	ESP0001-023M	TACT SWITCH(FM MODE)	
	S944	ESP0001-023M	TACT SWITCH(FM)	
	S945	ESP0001-023M	TACT SWITCH(AM)	
	BC101	EWS297-1125	SOCKET WIRE(7PIN)	
	BC202	EWS293-0132	SOCKET WIRE(3PIN)	
	FL901	ELU0001-174	FLUORESCENT	
	FW203	EWR35B-10LST	FLAT WIRE A(5PIN)	
	FW204	EWR37B-08LST	FLAT WIRE A(7PIN)	
	FW205	EWR34B-10LST	FLAT WIRE A(4PIN)	
	JA204	EMV7125-008R	MALE CONNEC(8PIN)	
	JA205	EMV7125-008R	MALE CONNEC(8PIN)	
	JA501	EMV7125-012R	CONNECT TER(12PIN)	
	JA502	EMV7125-012R	CONNECT TER(12PIN)	
	JA503	EMV7125-011R	MALE CONNEC(11PIN)	
	JA901	EMV7155-027R	CONNECTOR(27PIN)	
	PA990	EMV5103-002B	MALE CONNEC(2PIN)	
	RY101	ESK8D24-212	RELAY	
	RY102	ESK8D24-212	RELAY	
	RY201	ESK8D24-212	RELAY	
	RY202	ESK8D24-212	RELAY	
	RY203	ESK8D24-212	RELAY	
	RY204	ESK8D24-212	RELAY	
	TC901	ENZ1003-015	TRIMMER CAP	
	XT901	ECX0006-000KNJ	CRYSTAL	

⚠ : SAFETY PARTS

■ENH-250 A Main & Volume PC Board Ass'y


ENH-250-2
TK-K07T 94V-0
ENH-250-3
RY204
RY203
RY202
RY201
J304
ENH-230-4
J305
TK-K07A
EP001
C814
C815
JB101
JB901
JB201
JB202
JB203
JA003
DAP
IC701
JB501
JB502
JB503
BC211
FS701
IC702
IC704
IC703
JB206
JA001
DECK
CD
JA002
JB204
R-CH SPK
L-CH SPK
JA004
JA005
C805
C804
C801
C802
JB801
J802
JB205
JT812
JT822
EMW10272-202
ENH-250
-1

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q201	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q202	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q203	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q204	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q205	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q206	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q207	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q208	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q209	2SC3311A(Q,R)	SI.TRANSIST MATSUSHITA	
	Q210	2SC3311A(Q,R)	SI.TRANSIST MATSUSHITA	
	Q211	2SC3311A(Q,R)	SI.TRANSIST MATSUSHITA	
	Q212	2SC3311A(Q,R)	SI.TRANSIST MATSUSHITA	
	Q213	2SC3311A(Q,R)	SI.TRANSIST MATSUSHITA	
	Q214	2SC3311A(Q,R)	SI.TRANSIST MATSUSHITA	
	Q215	2SC3311A(Q,R)	SI.TRANSIST MATSUSHITA	
	Q216	2SC3311A(Q,R)	SI.TRANSIST MATSUSHITA	
	Q217	2SA733A(P,K)	SI.TRANSIST	
	Q218	DTA144ES	DIGITAL TRA ROHM	
	Q219	DTA114ES	DIGITAL TRA ROHM	
	Q220	DTC144ES	DIGITAL TRA ROHM	
	Q224	DTA114TS	DIGITAL TRA ROHM	
	Q701	DTC114WS	DIGITAL TRA	
	Q702	DTC114YS	DIGITAL TRA ROHM	
	Q703	DTC144ES	DIGITAL TRA ROHM	
	Q708	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q709	DTA123ES	DIODE ROHM	
	Q811	2SB1357(E,F)	SI.TRANSIST ROHM	
	Q812	2SC3311A(Q,R)	SI.TRANSIST MATSUSHITA	
	Q813	2SD2037(E,F)	SI.TRANSIST ROHM	

⚠ : SAFETY PARTS

I.C.s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC701	UPD78011BCW-121	I.C.	
	IC702	LB1639-CV	I.C(DIGI-OT SANYO	
	IC703	LB1639-CV	I.C(DIGI-OT SANYO	
	IC704	LB1639-CV	I.C(DIGI-OT SANYO	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D201	1SS119	SI.DIODE	
	D202	1SS119	SI.DIODE	
	D203	1SS119	SI.DIODE	
	D204	1SS119	SI.DIODE	
	D210	1SS119	SI.DIODE	
	D211	1SS119	SI.DIODE	
	D212	1SS119	SI.DIODE	
	D213	1SS119	SI.DIODE	
	D214	1SS119	SI.DIODE	
	D215	1SS119	SI.DIODE	
	D216	MTZ2.0JB	ZENER DIODE ROHM	
	D221	1SS119	SI.DIODE	
	D222	1SS119	SI.DIODE	
	D701	1SS119	SI.DIODE	
	D702	1SS119	SI.DIODE	
	D703	1SS119	SI.DIODE	
	D704	1SS119	SI.DIODE	
	D705	1SS119	SI.DIODE	
	D706	MTZ5.1JB	ZENER DIODE ROHM	
	D707	1SS119	SI.DIODE	
	D709	1SS119	SI.DIODE	
	D710	1SS119	SI.DIODE	
	D711	1SS119	SI.DIODE	
	D712	1SS119	SI.DIODE	
	D714	1SR139-200	SI.DIODE ROHM	
	D720	MTZ2.0JB	ZENER DIODE ROHM	
	D721	1SR139-200	SI.DIODE ROHM	
	D722	1SR139-200	SI.DIODE ROHM	
	D723	1SR139-200	SI.DIODE ROHM	
⚠	D801	30DL2FC	SI.DIODE NIHONINTER	
⚠	D802	30DL2FC	SI.DIODE NIHONINTER	
⚠	D803	30DL2FC	SI.DIODE NIHONINTER	
⚠	D804	30DL2FC	SI.DIODE NIHONINTER	
	D811	1SR139-200	SI.DIODE ROHM	
	D812	1SR139-200	SI.DIODE ROHM	
	D813	1SR139-200	SI.DIODE ROHM	
	D814	1SR139-200	SI.DIODE ROHM	
	D815	1SR35-200A	SI.DIODE ROHM	
	D816	1SR35-200A	SI.DIODE ROHM	
	D817	1SR139-200	SI.DIODE ROHM	
	D818	1SR139-200	SI.DIODE ROHM	
	D819	MTZ33JC	ZENER DIODE ROHM	
	D820	MTZ8.2JC	ZENER DIODE ROHM	
	D821	MTZ5.6JC	ZENER DIODE ROHM	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C207	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C208	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C209	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C210	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C213	QFVB1HJ-224N	0.22MF 50V T.FILM	
	C214	QFVB1HJ-224N	0.22MF 50V T.FILM	
	C224	QEK51EM-106	10MF 25V AL E.CAPAC	
	C225	QEK51EM-476	47MF 25V AL E.CAPAC	
	C226	QEB61HM-334ZM	0.33MF 50V LLC E.CAPA	
	C241	QFVB1HJ-224N	0.22MF 50V T.FILM	
	C242	QFVB1HJ-224N	0.22MF 50V T.FILM	
	C701	QEAD0HZ-22AZM	E.CAPACITO	
	C702	QETB1AM-476	47MF 10V E.CAPACITO	
	C703	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C705	QETB1EM-106	10MF 25V AL E.CAPAC	
	C706	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C707	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C708	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C709	QETB1EM-106	10MF 25V AL E.CAPAC	
	C710	QCBB1HK-471Y	470PF 50V CER.CAPACI	
	C711	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C712	QETB1CM-226	22MF 16V E.CAPACITO	
	C713	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C714	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C715	QETB1AM-476	47MF 10V E.CAPACITO	
	C716	QETB1CM-226	22MF 16V E.CAPACITO	
	C720	QETB0JM-477	470MF 6.3V AL E.CAPAC	
	C800	QFN81HJ-103	0.01MF 50V METAL.MYLA	
	C801	QFV82AJ-104	0.1MF 100V THIN FILM	
	C802	QFV82AJ-104	0.1MF 100V THIN FILM	
	C803	QFV82AJ-104	0.1MF 100V THIN FILM	
	C804	EEW4208-568E	5600MF E.CAPACITO	
	C805	EEW4208-568E	5600MF E.CAPACITO	
	C810	QCF21HP-103A	0.01MF 50V CER.CAPACI	
	C811	QCF21HP-103A	0.01MF 50V CER.CAPACI	
	C812	QCF21HP-103A	0.01MF 50V CER.CAPACI	
	C813	QCF21HP-103A	0.01MF 50V CER.CAPACI	
	C814	EET3506-338M	3300MF E.CAPACITO	
	C815	EET3506-338M	3300MF E.CAPACITO	
	C816	QETB1HM-107	100MF 50V E.CAPACITO	
	C817	QETB1HM-227	220MF 50V E.CAPACITO	
	C818	QETB1HM-226E	22MF 50V E.CAPACITO	
	C819	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C820	QER51HM-475	4.7MF 50V AL E.CAPAC	
	C821	QETB1HM-226E	22MF 50V E.CAPACITO	
	C822	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C823	QETB1AM-476	47MF 10V E.CAPACITO	
	C824	EET3506-338M	3300MF E.CAPACITO	
	C871	QFV81HJ-103	0.01MF 50V THIN FILM	
	C872	QFV81HJ-103	0.01MF 50V THIN FILM	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R	QRD161J-561	560 1/6W CARBON RES	
	R227	QRD167J-152	1.5K 1/6W CARBON RES	
	R228	QRD167J-152	1.5K 1/6W CARBON RES	
	R237	QRD161J-392	3.9K 1/6W CARBON RES	
	R238	QRD161J-392	3.9K 1/6W CARBON RES	
	R239	QRD161J-123	12K 1/6W CARBON RES	
	R240	QRD161J-123	12K 1/6W CARBON RES	
	R241	QRD161J-103	10K 1/6W CARBON RES	
	R242	QRD161J-103	10K 1/6W CARBON RES	
	R243	QRD161J-103	10K 1/6W CARBON RES	
	R244	QRD161J-103	10K 1/6W CARBON RES	
	R245	QRD161J-123	12K 1/6W CARBON RES	
	R246	QRD161J-123	12K 1/6W CARBON RES	
	R247	QRD167J-153	15K 1/6W CARBON RES	
	R248	QRD167J-153	15K 1/6W CARBON RES	
	R249	QRD167J-153	15K 1/6W CARBON RES	
	R250	QRD167J-153	15K 1/6W CARBON RES	
⚠	R253	QRD14CJ-100SX	10 1/4W UNF.CARBON	
⚠	R254	QRD14CJ-100SX	10 1/4W UNF.CARBON	
⚠	R255	QRD14CJ-100SX	10 1/4W UNF.CARBON	
⚠	R256	QRD14CJ-100SX	10 1/4W UNF.CARBON	
⚠	R257	QRD14CJ-100SX	10 1/4W UNF.CARBON	
⚠	R258	QRD14CJ-100SX	10 1/4W UNF.CARBON	
⚠	R263	QRD14CJ-100SX	10 1/4W UNF.CARBON	
⚠	R264	QRD14CJ-100SX	10 1/4W UNF.CARBON	
⚠	R265	QRG012J-221AM	220 1W OXIDE META	
⚠	R266	QRG012J-221AM	220 1W OXIDE META	
	R267	QRD161J-473	47K 1/6W CARBON RES	
	R268	QRD161J-473	47K 1/6W CARBON RES	
	R269	QRD161J-473	47K 1/6W CARBON RES	
	R270	QRD161J-473	47K 1/6W CARBON RES	
	R271	QRD161J-104	100K 1/6W CARBON RES	
	R272	QRD161J-104	100K 1/6W CARBON RES	
	R273	QRD161J-104	100K 1/6W CARBON RES	
	R274	QRD161J-104	100K 1/6W CARBON RES	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R275	QRD161J-104	100K 1/6W CARBON RES	
	R276	QRD161J-104	100K 1/6W CARBON RES	
	R277	QRD161J-393	39K 1/6W CARBON RES	
	R278	QRD161J-393	39K 1/6W CARBON RES	
	R279	QRD161J-393	39K 1/6W CARBON RES	
	R280	QRD161J-393	39K 1/6W CARBON RES	
	R281	QRD161J-103	10K 1/6W CARBON RES	
	R282	QRD161J-103	10K 1/6W CARBON RES	
	R283	QRD161J-103	10K 1/6W CARBON RES	
	R284	QRD161J-103	10K 1/6W CARBON RES	
	R285	QRD161J-473	47K 1/6W CARBON RES	
	R286	QRD161J-473	47K 1/6W CARBON RES	
	R287	QRD161J-104	100K 1/6W CARBON RES	
	R288	QRD161J-222	2.2K 1/6W CARBON RES	
	R289	QRD167J-682	6.8K 1/6W CARBON RES	
	R297	QRD167J-152	1.5K 1/6W CARBON RES	
	R298	QRD167J-152	1.5K 1/6W CARBON RES	
	R299	QRD167J-152	1.5K 1/6W CARBON RES	
	R300	QRD167J-152	1.5K 1/6W CARBON RES	
	R301	QRD167J-152	1.5K 1/6W CARBON RES	
	R321	QRD161J-393	39K 1/6W CARBON RES	
	R322	QRD161J-393	39K 1/6W CARBON RES	
	R331	QRD161J-133Y	13K 1/6W CARBON RES	
	R332	QRD161J-133Y	13K 1/6W CARBON RES	
	R701	QRD161J-470	47 1/6W CARBON RES	
	R702	QRD167J-223	22K 1/6W CARBON RES	
	R704	QRD161J-103	10K 1/6W CARBON RES	
	R705	QRD161J-103	10K 1/6W CARBON RES	
	R706	QRD161J-103	10K 1/6W CARBON RES	
	R707	QRD167J-102	1K 1/6W CARBON RES	
	R708	QRD161J-100	10 1/6W CARBON RES	
	R709	QRD161J-473	47K 1/6W CARBON RES	
	R710	QRD161J-221	220 1/6W CARBON RES	
	R716	QRD161J-681	680 1/6W CARBON RES	
	R717	QRD161J-561	560 1/6W CARBON RES	
	R718	PTH9M04BE471TS	POSITIVE T	
	R719	QRD167J-152	1.5K 1/6W CARBON RES	
	R720	QRD167J-430	43 1/6W CARBON RES	
	R721	QRD161J-473	47K 1/6W CARBON RES	
	R722	QRD161J-512	5.1K 1/6W CARBON RES	
	R723	QRD161J-512	5.1K 1/6W CARBON RES	
	R724	QRD167J-102	1K 1/6W CARBON RES	
	R730	QRD161J-331	330 1/6W CARBON RES	
	R731	QRD161J-331	330 1/6W CARBON RES	
	R732	QRD161J-331	330 1/6W CARBON RES	
	R733	QRD161J-331	330 1/6W CARBON RES	
	R734	QRD167J-223	22K 1/6W CARBON RES	
	R735	QRD161J-103	10K 1/6W CARBON RES	
	R736	QRD161J-333	33K 1/6W CARBON RES	
	R741	QRD167J-223	22K 1/6W CARBON RES	
⚠	R811	PTH61G25AR4R7M	POSITIVE T	
	R812	QRD167J-332	3.3K 1/6W CARBON RES	
	R813	QRD161J-222	2.2K 1/6W CARBON RES	
	VR201	QVDC94A-E15D	100K VARIABLE R	

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		QWE351-08RR	WIRE	
		QWE357-12RR	VINYL WIRE	
		QWE350-15RR	SHIELD WIRE	
	J202	EMV5109-003A	MALE CONNEC	
	J203	EMV7122-005	MALE CONNEC	
	J205	EMV7122-004	CONNECT TER(4PIN)	
	J211	EMV5109-006A	CONNECT TER(6PIN)	
	J703	EMV7122-103	CONNECT TER(3PIN)	
	J990	EMV5133-003	CONNECT TER(3PIN)	
	K223	ENZ8101-007	INDUCTOR	
	L201	EQL0001-R45	INDUCTOR	
	L202	EQL0001-R45	INDUCTOR	
	L203	EQL0001-R45	INDUCTOR	
	L204	EQL0001-R45	INDUCTOR	
	L205	EQL0001-R45	INDUCTOR	
	L206	EQL0001-R45	INDUCTOR	
	BC211	EWS296-0120	SOCKET WIRE(6PIN)	
	EP001	EMZ4002-001Z	EARTH PLATE	
	FS701	E306805-040	SPACER	
	JA001	EMV7127-015	FEMALE CONN	
	JA002	EMV7127-013	CONNECT TER(13PIN)	
	JA003	EMV7127-019	CONNECT TER(19PIN)	
	JA004	EMV7127-007	CONNECT TER(7PIN)	
	JA005	EMV7127-007	CONNECT TER(7PIN)	
	JA203	EMV7125-007R	CONNECT TER(7PIN)	
	JB101	EMV5140-015	CONNECT TER(15PIN)	
	JB201	EMV5125-010	MALE CONNEC(10PIN)	
	JB202	EMV5125-011	MALE CONNEC(11PIN)	
	JB203	EMV5125-007	MALE CONNEC(7PIN)	
	JB204	EMV5125-008	MALE CONNEC(8PIN)	

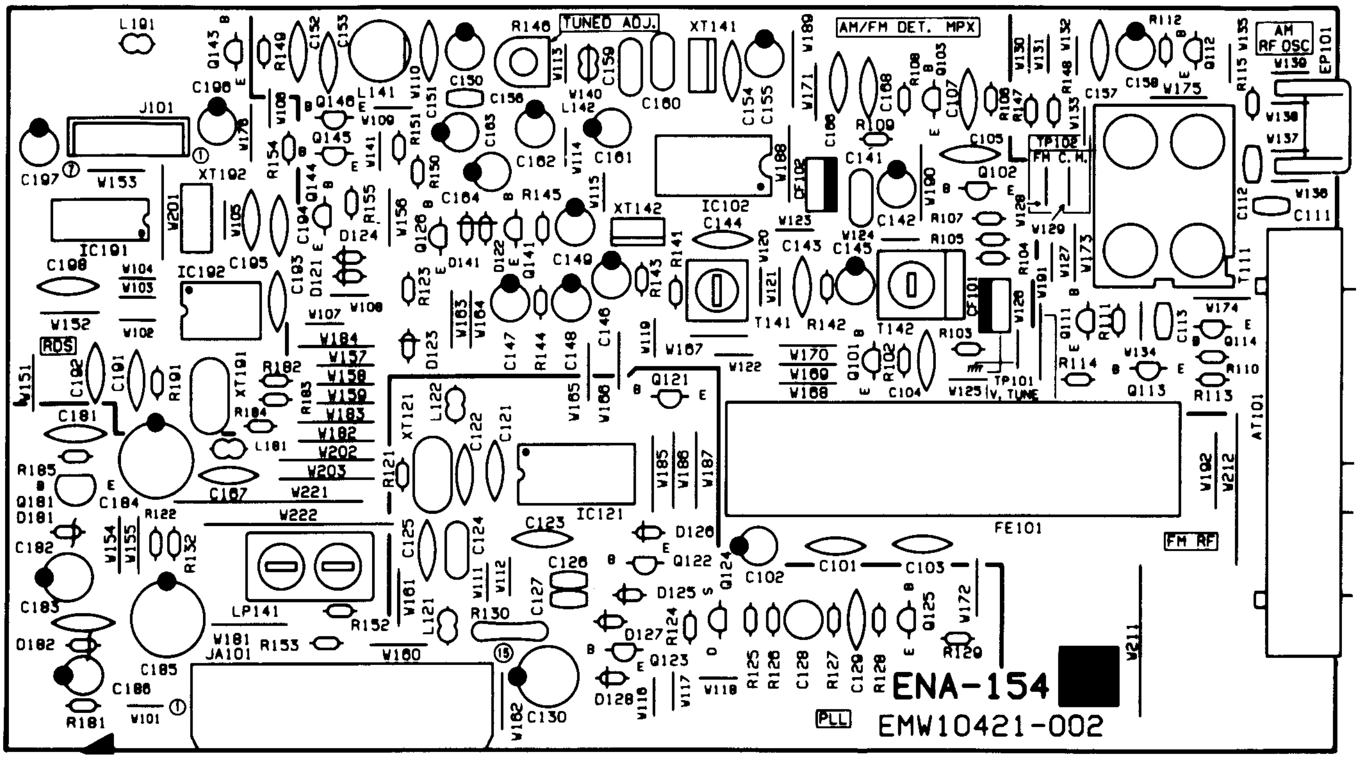
⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	JB205	EMV5125-008	MALE CONNEC(8PIN)	
	JB206	EMV5125-004	CONNECT TER(4PIN)	
	JB501	EMV5125-012	CONNECT TER(12PIN)	
	JB502	EMV5125-012	CONNECT TER(12PIN)	
	JB503	EMV5125-011	MALE CONNEC(11PIN)	
	JB801	EMV5125-005	CONNECT TER(5PIN)	
	JB901	EMV7155-027	CONNECTOR(27PIN)	
	JT211	EMV7122-103	CONNECT TER(3PIN)	
	JT214	EMV7122-004	CONNECT TER(4PIN)	
	JT221	EMV7122-004	CONNECT TER(4PIN)	
	JT224	EMV7122-103	CONNECT TER(3PIN)	
	JT812	EMV7122-103	CONNECT TER(3PIN)	
	JT822	EMV7122-103	CONNECT TER(3PIN)	
	XT701	ECX0008-380KN	CRYSTAL	

⚠ : SAFETY PARTS

■ENA-154 H Tuner PC Board Ass'y



Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q101	2SC461(B,C)	SI.TRANSIST HITACHI	
	Q102	2SC535(B,C)	SILICON	
	Q103	2SC461(B,C)	SI.TRANSIST HITACHI	
	Q111	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q112	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q113	2SC1740S(R,S)	SI.TRANSIST ROHM	
	Q114	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q121	DTA144ES	DIGITAL TRA ROHM	
	Q122	DTA144ES	DIGITAL TRA ROHM	
	Q123	DTA144ES	DIGITAL TRA ROHM	
	Q124	2SK301(Q2)	F.E.T.	
	Q125	2SC458(D)	SILICON	
	Q126	DTC114ES	DIGITAL TRA ROHM	
	Q141	DTC114ES	DIGITAL TRA ROHM	
	Q143	DTC114ES	DIGITAL TRA ROHM	
	Q144	DTA144ES	DIGITAL TRA ROHM	
	Q145	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q146	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q181	2SD400MP(E,F)	SI.TRANSIST SANYO	

⚠ : SAFETY PARTS

I.C.s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC102	LA1836M	I.C(MONO-AN SANYO	
	IC121	LC7218M	I.C(DIGI-MO SANYO	
	IC191	LC7073M	I.C(DIGI-MO SANYO	
	IC192	SAA6579T	I.C(M)	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D121	1SS119	SI.DIODE	
	D122	1SS119	SI.DIODE	
	D123	1SS119	SI.DIODE	
	D124	1SS119	SI.DIODE	
	D125	1SS119	SI.DIODE	
	D126	1SS119	SI.DIODE	
	D127	1SS119	SI.DIODE	
	D128	1SS119	SI.DIODE	
	D141	1SS119	SI.DIODE	
	D181	MTZ7.5JC	ZENER DIODE ROHM	
	D182	MTZ5.1JC	ZENER DIODE ROHM	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C101	QCF21HP-103A	0.01MF 50V CER.CAPACI	
	C102	QETB1HM-476	47MF 50V E.CAPACITO	
	C103	QCF21HP-223A	0.022MF 50V CER.CAPACI	
	C104	QCF21HP-223A	0.022MF 50V CER.CAPACI	
	C105	QCF21HP-223A	0.022MF 50V CER.CAPACI	
	C107	QCF21HP-223A	0.022MF 50V CER.CAPACI	
	C111	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C112	QCT30CH-120Y	12PF 50V CER.CAPACI	
	C113	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C121	QCS21HJ-180A	18PF 50V CER.CAPACI	
	C122	QCS21HJ-180A	18PF 50V CER.CAPACI	
	C123	QCC21EM-473	0.047MF 25V CER.CAPACI	
	C124	QCZ0202-155	1.5MF 25V CER.RESIST	
	C125	QCF21HP-223A	0.022MF 50V CER.CAPACI	
	C126	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C127	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C128	QENB1HM-474	0.47MF 50V NP E.CAPAC	
	C129	QCY21HK-102	1000PF 50V CER.CAPACI	
	C130	QETB1CM-227	220MF 16V AL E.CAPAC	
	C141	QFLB1HJ-473	0.047MF 50V MYLAR CAPA	
	C142	QETB1HM-106	10MF 50V E.CAPACITO	
	C143	QCF21HP-223A	0.022MF 50V CER.CAPACI	
	C144	QCC21EM-223	0.022MF 25V CER.CAPACI	
	C145	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C146	QETB1HM-106	10MF 50V E.CAPACITO	
	C147	QETB1HM-105	1MF 50V AL E.CAPAC	
	C148	QETB1HM-474	0.47MF 50V ELECTRO	
	C149	QETB1HM-105	1MF 50V AL E.CAPAC	
	C150	QETC1HM-225ZN	2.2MF 50V AL E.CAPAC	
	C151	QCS21HJ-181A	180PF 50V CER.CAPACI	
	C152	QCS21HJ-181A	180PF 50V CER.CAPACI	
	C153	QCY31HK-821Z	820PF 50V CER.CAPACI	
	C154	QCY31HK-472Z	4700PF 50V CER.CAPACI	
	C155	QETB1EM-476	47MF 25V AL E.CAPAC	
	C156	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C157	QCF21HP-473A	0.047MF 50V CER.CAPACI	
	C158	QETB1HM-106	10MF 50V E.CAPACITO	
	C159	QFLB1HJ-333	0.033MF 50V MYLAR CAPA	
	C160	QFLB1HJ-333	0.033MF 50V MYLAR CAPA	
	C161	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C162	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C163	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C164	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C166	QCC21EM-473	0.047MF 25V CER.CAPACI	
	C167	QCF21HP-223A	0.022MF 50V CER.CAPACI	
	C168	QCC21EM-473	0.047MF 25V CER.CAPACI	
	C181	QCF21HP-223A	0.022MF 50V CER.CAPACI	
	C182	QETB1CM-107	100MF 16V AL E.CAPAC	
	C183	QCF21HP-223A	0.022MF 50V CER.CAPACI	
	C184	QETB1CM-227	220MF 16V AL E.CAPAC	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C185	QETB1CM-477M	470MF 16V E.CAPACITO	
	C186	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C191	QCS21HJ-820	82PF 50V CER.CAPACI	
	C192	QCS21HJ-470	47PF 50V CER.CAPACI	
	C193	QCS21HJ-561	560PF 50V CER.CAPACI	
	C194	QCF21HP-223A	0.022MF 50V CER.CAPACI	
	C195	QCS21HJ-331	330PF 50V CER.CAPACI	
	C196	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C197	QETB1HM-106	10MF 50V E.CAPACITO	
	C198	QCC21EM-104	0.1MF 25V CER.CAPACI	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R102	QRD167J-332	3.3K 1/6W CARBON RES	
	R103	QRD161J-221	220 1/6W CARBON RES	
	R104	QRD167J-272	2.7K 1/6W CARBON RES	
	R105	QRD161J-391	390 1/6W CARBON RES	
	R106	QRD167J-102	1K 1/6W CARBON RES	
	R107	QRD161J-681	680 1/6W CARBON RES	
	R108	QRD167J-332	3.3K 1/6W CARBON RES	
	R109	QRD161J-221	220 1/6W CARBON RES	
	R110	QRD161J-472	4.7K 1/6W CARBON RES	
	R111	QRD161J-472	4.7K 1/6W CARBON RES	
	R112	QRD161J-472	4.7K 1/6W CARBON RES	
	R113	QRD161J-103	10K 1/6W CARBON RES	
	R114	QRD161J-103	10K 1/6W CARBON RES	
	R115	QRD161J-104	100K 1/6W CARBON RES	
	R121	QRD161J-473	47K 1/6W CARBON RES	
	R122	QRD161J-103	10K 1/6W CARBON RES	
	R123	QRD167J-562	5.6K 1/6W CARBON RES	
	R124	QRD161J-222	2.2K 1/6W CARBON RES	
	R125	QRD161J-222	2.2K 1/6W CARBON RES	
	R126	QRD161J-181	180 1/6W CARBON RES	
	R127	QRD167J-822	8.2K 1/6W CARBON RES	
	R128	QRD161J-472	4.7K 1/6W CARBON RES	
	R129	QRD161J-222	2.2K 1/6W CARBON RES	
⚠	R130	QRZ0077-680	68 1/4W FUSIBLE RE	
	R132	QRD167J-102	1K 1/6W CARBON RES	
	R141	QRD161J-392	3.9K 1/6W CARBON RES	
	R142	QRD161J-103	10K 1/6W CARBON RES	
	R143	QRD161J-103	10K 1/6W CARBON RES	
	R144	QRD167J-332	3.3K 1/6W CARBON RES	
	R145	QRD161J-103	10K 1/6W CARBON RES	
	R146	QVPA601-103A	10K TRIMMER RE	
	R147	QRD161J-473	47K 1/6W CARBON RES	
	R148	QRD161J-561	560 1/6W CARBON RES	
	R149	QRD161J-103	10K 1/6W CARBON RES	
	R150	QRD167J-332	3.3K 1/6W CARBON RES	
	R151	QRD167J-332	3.3K 1/6W CARBON RES	
	R152	QRD167J-822	8.2K 1/6W CARBON RES	
	R153	QRD167J-822	8.2K 1/6W CARBON RES	
	R154	QRD161J-103	10K 1/6W CARBON RES	
	R155	QRD161J-103	10K 1/6W CARBON RES	
	R181	QRD161J-222	2.2K 1/6W CARBON RES	
	R182	QRD161J-103	10K 1/6W CARBON RES	
	R183	QRD161J-103	10K 1/6W CARBON RES	
	R184	QRD161J-103	10K 1/6W CARBON RES	
	R185	QRD161J-472	4.7K 1/6W CARBON RES	
	R191	QRD161J-222	2.2K 1/6W CARBON RES	

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		E309022-001SM	SHIELD BRAC	
		VYH7653-002	I.C.SOCKET	
		VYH7653-004	I.C.PROTECT	
		VYH7653-009	I.C HOLDER	
	J101	EMV5109-007A	MALE CONNEC	
	L111	EQL4004-220	INDUCTOR	
	L121	EQL4004-1R0	INDUCTOR	
	L122	EQL4004-1R0	INDUCTOR	
	L141	EQL2108-392	INDUCTOR	
	L181	EQL4004-1R0	INDUCTOR	
	L191	EQL4004-101	INDUCTOR	
	T111	EQR7121-002	RF COIL	
	T141	EQT2140-021	I.F.TRANSFO	
	T142	ECB1560-010	CERAMIC FIL	
	AT101	EMB41YV-301K	ANTENNA TER	
	CF101	ECB2118-007R	CERAMIC FIL	
	CF102	ECB2118-007R	CERAMIC FIL	
	EP101	E70225-001	EARTH PLATE	
	FE101	EAF2203-005	FRONT END	
	JA101	EMV7140-L15R	CONNECT TER(15PIN)	

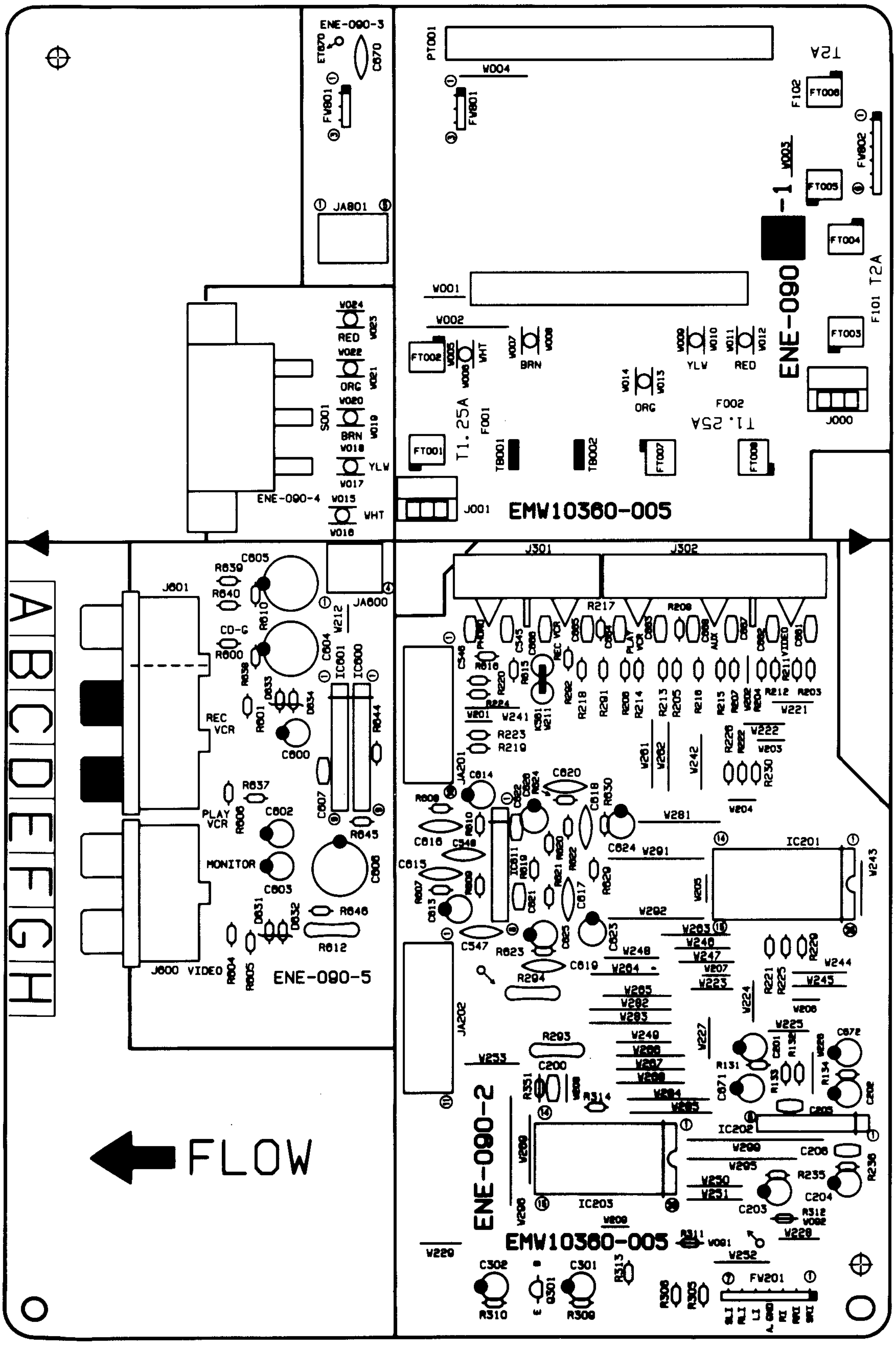
⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	LP141	EQF0101-002	LOWPASS FIL	
	XT121	ECX0007-200KC	CRYSTAL	
	XT141	ECXPR46-001A	CRYSTAL	
	XT142	ECB1001-002	CERAMIC FIL	
	XT191	VCX5057-001	CRYSTAL	
	XT192	EFO-EC4004T4	CERAMIC RES	

⚠ : SAFETY PARTS

■ENE-090 F Source Selector & Power Supply PC Board Ass'y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JA801
JA600
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J001
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J302
IC201
IC202
IC203
IC600
IC601
FW201
FW801
FW802
F001
F002
F101
F102
T1.25A
T2A
PT001
REC VCR
PLAY VCR
MONITOR
VIDEO
RED
ORG
BRN
YLW
WHT

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q301	2SC3311A(Q,R)	SI.TRANSIST MATSUSHITA	

⚠ : SAFETY PARTS

I.C.s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC201	TC9163N	I.C(DIGI-MO TOSHIBA	
	IC202	VC4580L	I.C(MONO-AN DAINICHI	
	IC203	TC9164N	I.C(DIGI-MO TOSHIBA	
	IC600	LA7952	I.C(MONO-AN SANYO	
	IC601	LA7952	I.C(MONO-AN SANYO	
	IC611	VC4580LD	I.C(MONO-AN DAINICHI	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C200	QCBB1HK-561Y	560PF 50V CER.CAPACI	
	C201	EEZ5009-226	22MF E.CAPACITO	
	C202	EEZ5009-226	22MF E.CAPACITO	
	C203	EEZ5009-226	22MF E.CAPACITO	
	C204	EEZ5009-226	22MF E.CAPACITO	
	C205	QCBB1HK-471Y	470PF 50V CER.CAPACI	
	C206	QCBB1HK-471Y	470PF 50V CER.CAPACI	
	C301	QETB1CM-226	22MF 16V E.CAPACITO	
	C302	QETB1CM-226	22MF 16V E.CAPACITO	
	C545	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C546	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C547	QCY21HK-102	1000PF 50V CER.CAPACI	
	C548	QCY21HK-102	1000PF 50V CER.CAPACI	
	C602	QETB1AM-476	47MF 10V E.CAPACITO	
	C603	QETB1AM-476	47MF 10V E.CAPACITO	
	C604	QETB0JM-108	1000MF 6.3V AL E.CAPAC	
	C605	QETB0JM-108	1000MF 6.3V AL E.CAPAC	
	C606	QETB1CM-228M	2200MF 16V E.CAPACITO	
	C607	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C613	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C614	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C615	QCS21HJ-221	220PF 50V CER.CAPACI	
	C616	QCS21HJ-221	220PF 50V CER.CAPACI	
	C617	QCY31HK-182Z	1800PF 50V CER.CAPACI	
	C618	QCY31HK-182Z	1800PF 50V CER.CAPACI	
	C619	QCY31HK-682Z	6800PF 50V CER.CAPACI	
	C620	QCY31HK-682Z	6800PF 50V CER.CAPACI	
	C621	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C622	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C623	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C624	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C625	QETB1EM-226	22MF 25V E.CAPACITO	
	C626	QETB1EM-226	22MF 25V E.CAPACITO	
	C661	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C662	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C663	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C664	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C665	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C666	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C667	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C668	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C671	QETB1CM-476	47MF 16V AL E.CAPAC	
	C672	QETB1CM-476	47MF 16V AL E.CAPAC	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R131	QRD161J-104	100K 1/6W CARBON RES	
	R132	QRD161J-104	100K 1/6W CARBON RES	
	R133	QRD161J-104	100K 1/6W CARBON RES	
	R134	QRD161J-104	100K 1/6W CARBON RES	
	R203	QRD167J-153	15K 1/6W CARBON RES	
	R204	QRD167J-153	15K 1/6W CARBON RES	
	R205	QRD167J-153	15K 1/6W CARBON RES	
	R206	QRD167J-153	15K 1/6W CARBON RES	
	R207	QRD167J-153	15K 1/6W CARBON RES	
	R208	QRD167J-153	15K 1/6W CARBON RES	
	R211	QRD161J-104	100K 1/6W CARBON RES	
	R212	QRD161J-104	100K 1/6W CARBON RES	
	R213	QRD161J-104	100K 1/6W CARBON RES	
	R214	QRD161J-104	100K 1/6W CARBON RES	
	R215	QRD161J-104	100K 1/6W CARBON RES	
	R216	QRD161J-104	100K 1/6W CARBON RES	
	R217	QRD161J-222	2.2K 1/6W CARBON RES	
	R218	QRD161J-222	2.2K 1/6W CARBON RES	
	R219	QRD161J-242	2.4K 1/6W CARBON RES	
	R220	QRD161J-242	2.4K 1/6W CARBON RES	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R221	QRD167J-822	8.2K 1/6W CARBON RES	
	R222	QRD167J-822	8.2K 1/6W CARBON RES	
	R223	QRD161J-221	220 1/6W CARBON RES	
	R224	QRD161J-221	220 1/6W CARBON RES	
	R225	QRD161J-104	100K 1/6W CARBON RES	
	R226	QRD161J-104	100K 1/6W CARBON RES	
	R229	QRD161J-103	10K 1/6W CARBON RES	
	R230	QRD161J-103	10K 1/6W CARBON RES	
	R235	QRD161J-104	100K 1/6W CARBON RES	
	R236	QRD161J-104	100K 1/6W CARBON RES	
	R291	QRD161J-513	51K 1/6W CARBON RES	
	R292	QRD161J-513	51K 1/6W CARBON RES	
⚠	R293	QRD14CJ-100SX	10 1/4W UNF.CARBON	
⚠	R294	QRD14CJ-100SX	10 1/4W UNF.CARBON	
	R305	QRD161J-104	100K 1/6W CARBON RES	
	R306	QRD161J-104	100K 1/6W CARBON RES	
	R309	QRD161J-105	1M 1/6W CARBON RES	
	R310	QRD167J-102	1K 1/6W CARBON RES	
	R351	QRD167J-102	1K 1/6W CARBON RES	
	R604	QRD161J-750	75 1/6W CARBON RES	
	R605	QRD161J-100	10 1/6W CARBON RES	
	R606	QRD161J-750	75 1/6W CARBON RES	
	R607	QRD167J-272	2.7K 1/6W CARBON RES	
	R608	QRD167J-272	2.7K 1/6W CARBON RES	
	R609	QRD161J-104	100K 1/6W CARBON RES	
	R610	QRD161J-104	100K 1/6W CARBON RES	
	R611	QRD161J-750	75 1/6W CARBON RES	
⚠	R612	QRD14CJ-100SX	10 1/4W UNF.CARBON	
	R615	QRD161J-104	100K 1/6W CARBON RES	
	R616	QRD161J-104	100K 1/6W CARBON RES	
	R619	QRD167J-751	750 1/6W CARBON RES	
	R620	QRD167J-751	750 1/6W CARBON RES	
	R621	QRD161J-393	39K 1/6W CARBON RES	
	R622	QRD161J-393	39K 1/6W CARBON RES	
	R623	QRD161J-474	470K 1/6W CARBON RES	
	R624	QRD161J-474	470K 1/6W CARBON RES	
	R629	QRD161J-104	100K 1/6W CARBON RES	
	R630	QRD161J-104	100K 1/6W CARBON RES	
	R637	QRD161J-100	10 1/6W CARBON RES	
	R638	QRD161J-473	47K 1/6W CARBON RES	
	R639	QRD161J-750	75 1/6W CARBON RES	
	R640	QRD161J-473	47K 1/6W CARBON RES	
	R644	QRD161J-474	470K 1/6W CARBON RES	
	R645	QRD161J-474	470K 1/6W CARBON RES	
	R646	QRD161J-474	470K 1/6W CARBON RES	

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	J	EMV7112-003	CONNECT TER(3PIN)	
	J001	EMV7112-003	CONNECT TER(3PIN)	
	J301	EMN00TV-405A	JACK BOARD	
	J302	EMN00TV-602A	JACK BOARD	
	J600	EMN00YV-205A	PIN JACK	
	J601	EMN00YV-205A	PIN JACK	
	FT001	EMG7331-002U	CONTACT CLI	
	FT002	EMG7331-002	FEEDER CLAM	
	FT003	EMG7331-002	FEEDER CLAM	
	FT004	EMG7331-002U	CONTACT CLI	
	FT005	EMG7331-002	FEEDER CLAM	
	FT006	EMG7331-002U	CONTACT CLI	
	FW201	EWR37B-10LST	FLAT WIRE(7PIN)	
	FW801	EWR33B-10SST	FLAT WIRE(3PIN)	
	FW802	EWR36B-10LST	FLAT WIRE(6PIN)	
	JA201	EMV7125-010R	MALE CONNEC(10PIN)	
	JA202	EMV7125-011R	MALE CONNEC(11PIN)	
	JA600	EMV7125-004R	CONNECT TER(4PIN)	
	JA801	EMV7125-005R	CONNECT TER(5PIN)	
	TB001	EMZ4001-001	TAB	
	TB002	EMZ4001-001	TAB	

⚠ : SAFETY PARTS

Accessories List

Symbol No. M 2 M M

Item	Part Number	Part Name	Q'ty	Description	Areas
1	E30580-2131A	INSTRUCTION BOOK	1		EF
	E30580-2131A	INSTRUCTION BOOK	1		G
	E30580-2131A	INSTRUCTION BOOK	1		GI
	E30580-2132A	INSTRUCTION BOOK	1		EN
2	BT-20134	WARRANTY CARD	1		G
3	EWP502-005K	BUILT-IN ANTENNA	1		EF
	EWP502-005K	BUILT-IN ANTENNA	1		EN
	EWP502-005K	BUILT-IN ANTENNA	1		GI
	E67007-001	ANTENNA WIRE	1		G
4	EQB4001-015	LOOP ANTENNA	1		
5	EMZ2001-014	ADAPTOR PLUG	1		EF
	EMZ2001-014	ADAPTOR PLUG	1		EN
	EMZ2001-014	ADAPTOR PLUG	1		GI
6	EWP902-033	FLAT WIRE ASSY	2		
7	RM-SEG90U	REMOTE CONTROLLER	1		
8	UR64EC1293A	BATTERY COVER	1		
9	UM-4NJ-2PSA	BATTERY	1		
10	E43486-519A	CAUTION SHEET	1		
11	EWZ01-004	GND WIRE	1		
12	QPGA025-03505B	ENVELOPE	1		

The Marks for Designated Areas

EN .... Scandinavia

G ..... Germany

EF .... Continental Europe

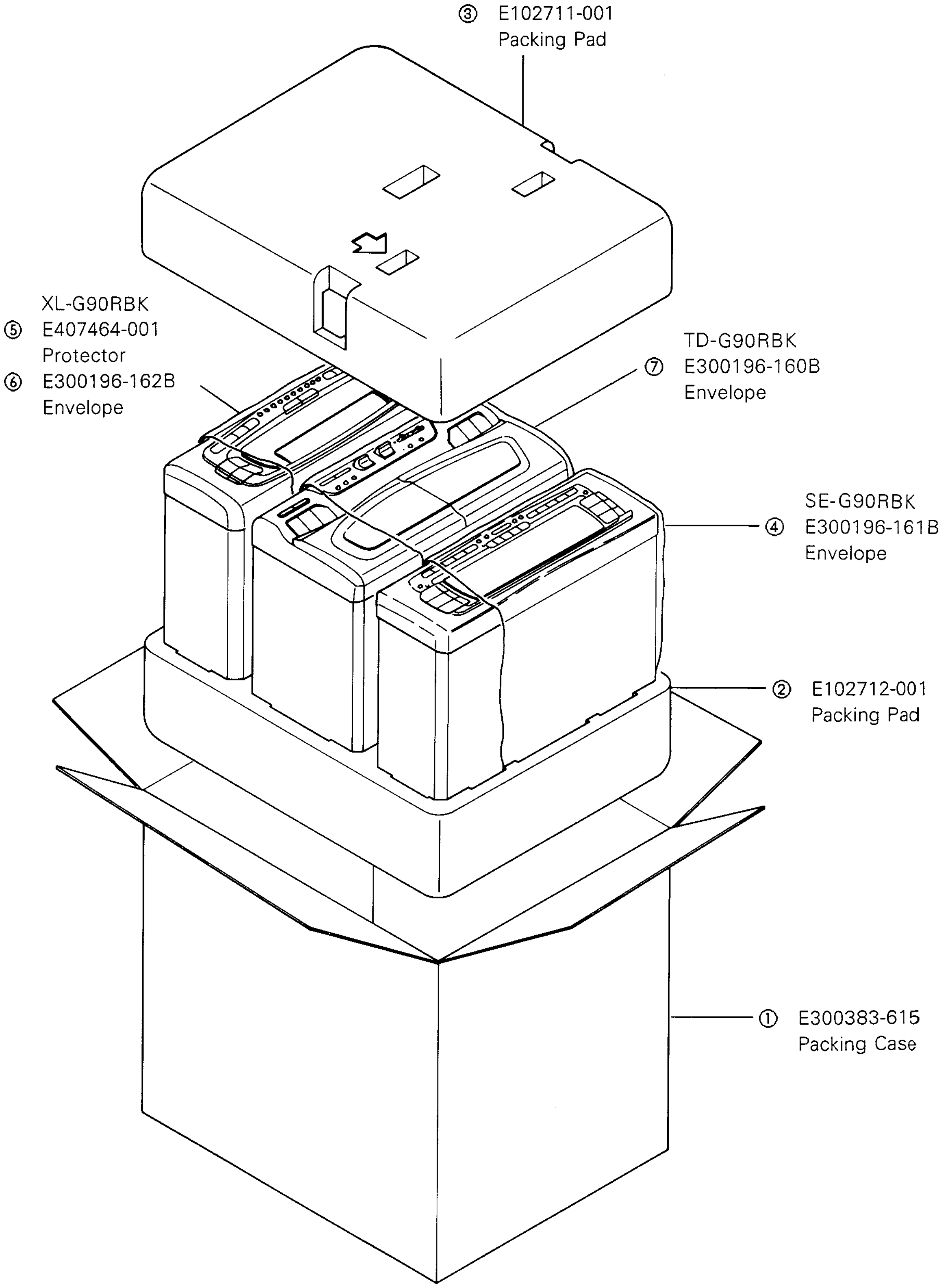
GI .... Itary

No mark indicates all areas.

Packing Materials and Part Numbers

Symbol No. M 3 M M

■ **XT-G90RBK**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SE-G90RBK
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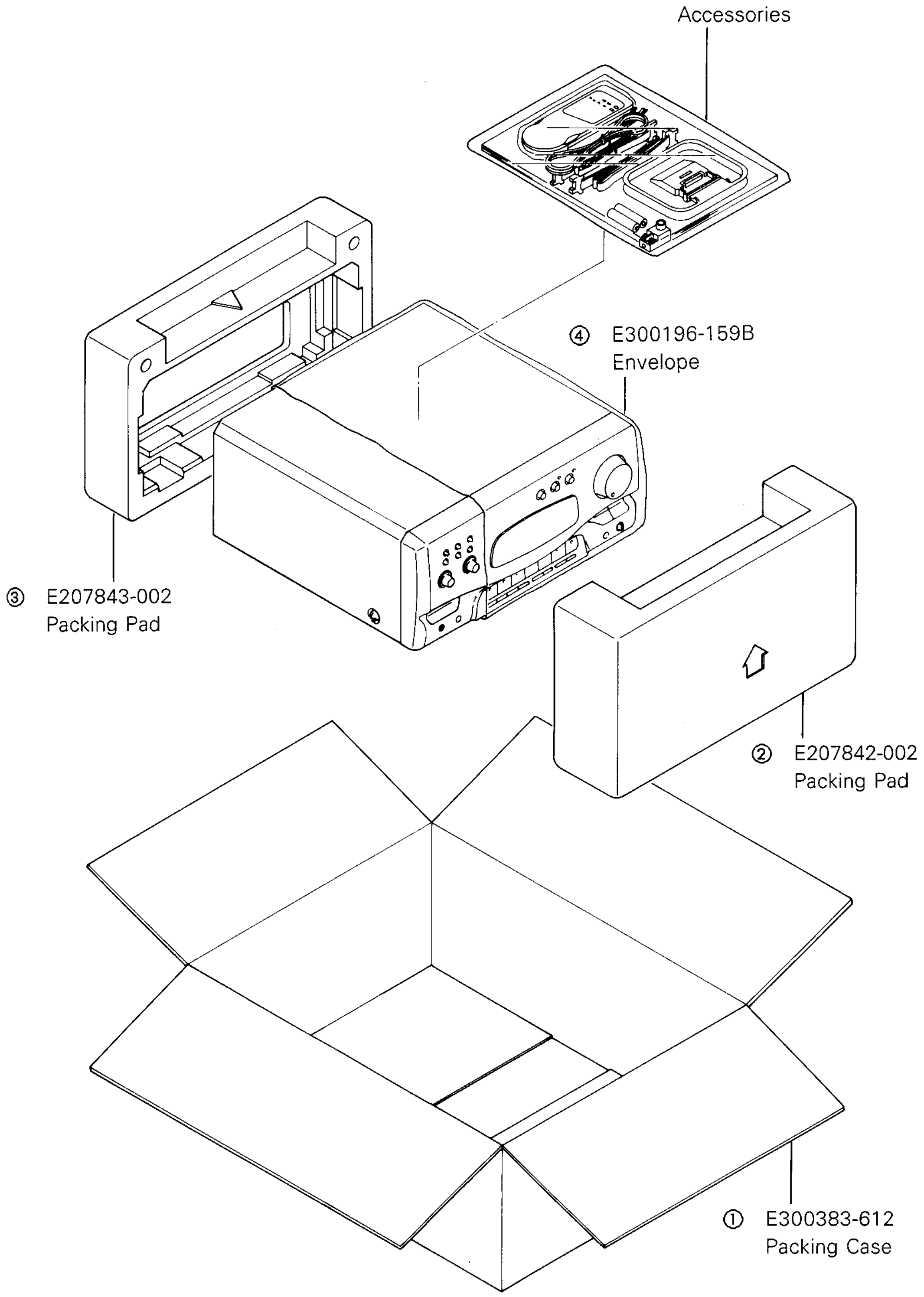
Packing Case

Symbol No. | M | 4 | M | M |

■ RX-G90RBK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Packing Pad
② E207842-002
Packing Pad
① E300383-612
Packing Case

—— MEMO ——

SE-G90RBK

< PARTS LIST >

Note : All printed circuit boards and its assemblies are not available as service parts.

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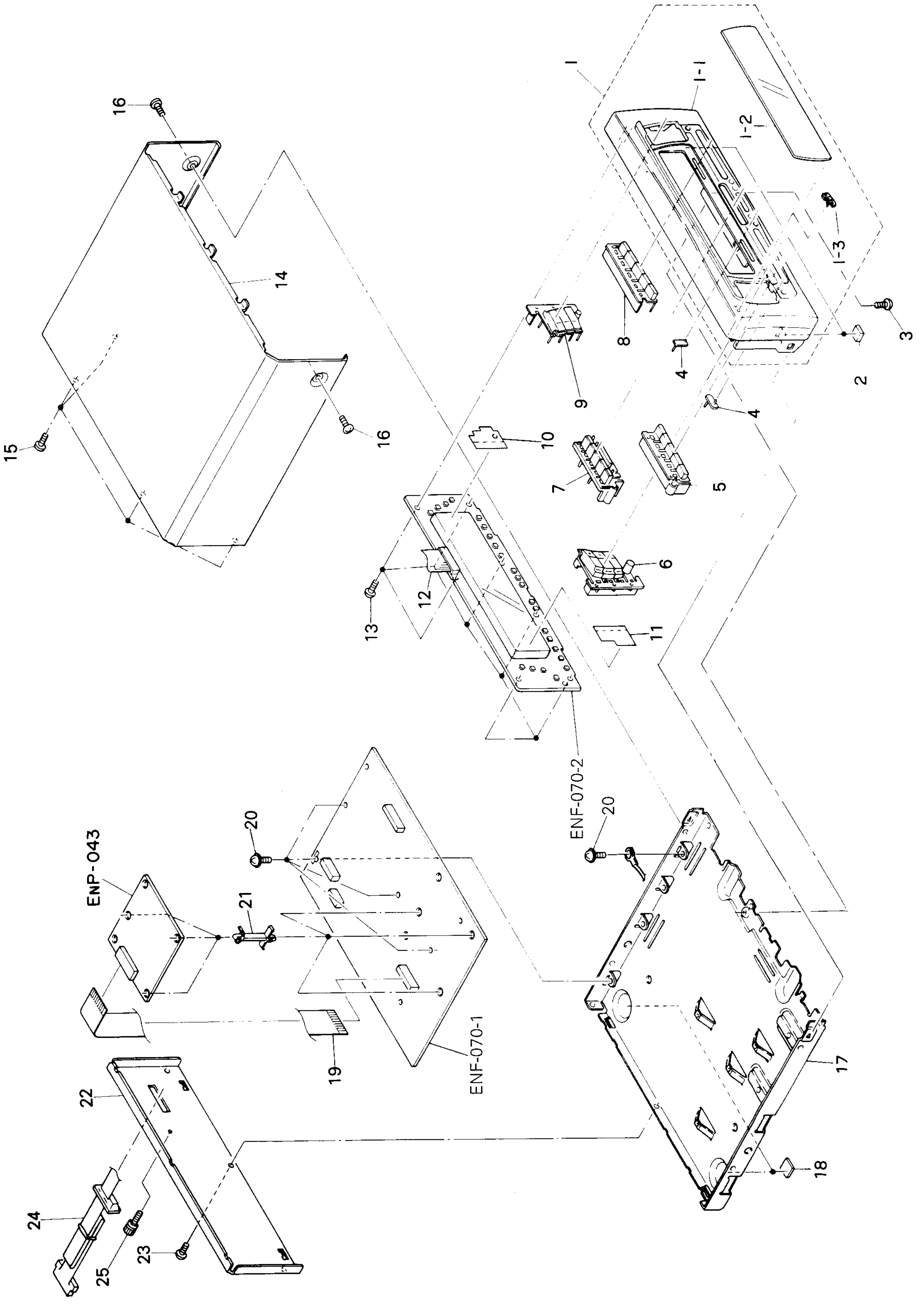
Printed Circuit Board Ass'y and Parts List 7-4

- ■ ENF-070 A Front & Main PC Board Ass'y 7-4
- ■ ENP-043 A Digital Signal Processor PC Board Ass'y 7-7

General Exploded View and Parts List

Symbol No. M 5 M M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ENF-070-2
ENF-070-1
ENP-043

■ Parts List

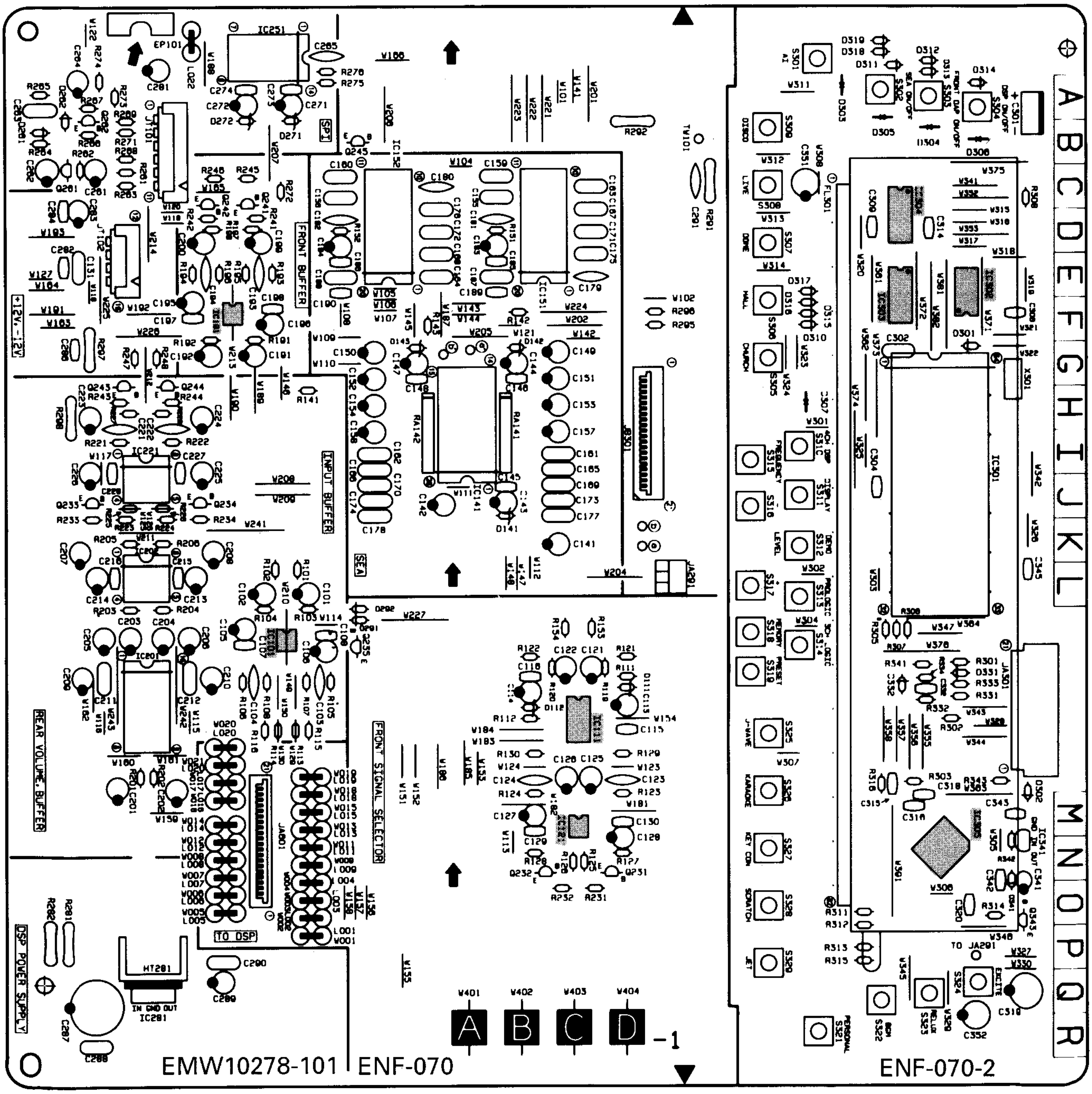
Symbol No. M 5 M M

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	1	EFP-SEG90RBKE (S	FRONT PANEL ASSY	1		
	1-1	E102628-010	FRONT PANEL	1		
	1-2	E207611-003	WINDOW SCREEN	1		
	1-3	E406971-221	JVC MARK	1		
	2	E406855-008	SPACER	2	FRONT FOOT	
	3	E74304-001	SPECIAL SCREW	1		
	4	E406673-001	CASSETTE INDICATOR	2		
	5	E207618-004	PUSH BUTTON	1		
	6	E207613-004	PUSH BUTTON ASSY	1		
	7	E207622-002	PUSH BUTTON	1		
	8	E207620-003	PUSH BUTTON	1		
	9	E207616-003	PUSH BUTTON	1		
	10	E407365-001	SPACER	1		
	11	E407364-001	SPACER	1		
	12	E407363-002	FFC CABLE	1		
	13	SDSF2608Z	SCREW	7		
	14	E207626-001	METAL COVER	1		
	15	E73273-003	SPECIAL SCREW	4		
	16	SDSG3008M	SCREW	2		
	17	E102462-001	CHASSIS BASE	1		
	18	E406855-005	SPACER	2	REAR FOOT	
	19	VWF1221-07TTB	FCC CABBLE	1		
	20	GBSG3008CC	SCREW	5		
	21	E24624-001	FASTENER	3		
	22	E207624-011	REAR PANEL	1		
	23	SBSG3008CC	SCREW	1		
	24	EWP902-032	FLAT WIRE ASSY	1		
	25	E408091-001	GND TERMINAL	1		
	—	E61029-011	NUMBER LABEL	1		

⚠ SAFETY PARTS

Printed Circuit Board Ass'y and Parts List

■ ENF-070 A Front & Main PC Board Ass'y


A
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EP101
IC251
SPT
FRONT BUFFER
INPUT BUFFER
SEA
REAR VOLUME BUFFER
FRONT SIGNAL SELECTOR
TO DSP
DSP POWER SUPPLY
+12V, -12V
HT201
IN GND OUT
IC281
JA001
CN301
FL301
IC301
JA301
JA291
DISCO
LIVE
DOME
HALL
CHURCH
FREQUENCY
LEVEL
MEMORY PRESET
J-WAVE
KARAOKE
KEY CON
SCRATCH
JET
PERSONAL
BGM
RELAX
EXCITE
DISPLAY
DEMO
PROLOGIC
4CH DSP
TO JA201
A
B
C
D
-1
EMW10278-101
ENF-070
ENF-070-2

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q231	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q232	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q233	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q234	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q235	DTA144ES	DIGITAL TRA ROHM	
	Q241	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q242	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q243	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q244	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q245	DTA144ES	DIGITAL TRA ROHM	
	Q261	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q262	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q343	DTC114YS	DIGITAL TRA ROHM	

⚠ : SAFETY PARTS

I.C.s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC101	XRA15218F	I.C.	
	IC111	TC4053BF	I.C(DIGI-MO TOSHIBA	
	IC121	XRA15218F	I.C.	
	IC141	LC7522	I.C(DIGI-MO SANYO	
	IC151	LA3607S	I.C(MONO-AN SANYO	
	IC152	LA3607S	I.C(MONO-AN SANYO	
	IC191	XRA15218F	I.C.	
	IC201	TC9213P	I.C(DIGI-MO TOSHIBA	
	IC202	XRA15218	I.C(MONO-AN ROHM	
	IC221	XRA15218	I.C(MONO-AN ROHM	
	IC251	XR1097CP	I.C(MONO-AN EXAR JAPAN	
	IC281	NJM78M05FD	I.C(MONO-AN DAINICHI	
	IC301	MN171602JHK	I.C(MICRO-C MATSUSHITA	
	IC302	TC74HC42AFT2	I.C(DIGI-MO TOSHIBA	
	IC303	AN6873SW	I.C(MONO-AN MATSUSHITA	
	IC304	AN6873SW	I.C(MONO-AN MATSUSHITA	
	IC305	MSC7112-01GSV1K	I.C(DIGI-MO NIHON DENSO	
	IC341	MN1281(P/Q)	I.C(DIGI-MO MATSUSHITA	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D111	MTZ5.1JC	ZENER DIODE ROHM	
	D112	MTZ5.1JC	ZENER DIODE ROHM	
	D141	MTZ6.8JC	ZENER DIODE ROHM	
	D142	MTZ6.8JC	ZENER DIODE ROHM	
	D143	MTZ5.1JC	ZENER DIODE ROHM	
	D261	1SS119	SI.DIODE	
	D262	1SS119	SI.DIODE	
	D271	MTZ5.1JC	ZENER DIODE ROHM	
	D272	MTZ5.1JC	ZENER DIODE ROHM	
	D291	1SS119	SI.DIODE	
	D292	1SS119	SI.DIODE	
	D301	1SS119	SI.DIODE	
	D302	1SS119	SI.DIODE	
	D303	SLR-342VC3F	L.E.D. ROHM	
	D304	SLR-342VC3F	L.E.D. ROHM	
	D305	SLR-342VC3F	L.E.D. ROHM	
	D306	SLR-342VC3F	L.E.D. ROHM	
	D307	SLR-342VC3F	L.E.D. ROHM	
	D310	1SS119	SI.DIODE	
	D311	1SS119	SI.DIODE	
	D312	1SS119	SI.DIODE	
	D313	1SS119	SI.DIODE	
	D314	1SS119	SI.DIODE	
	D315	1SS119	SI.DIODE	
	D316	1SS119	SI.DIODE	
	D317	1SS119	SI.DIODE	
	D318	1SS119	SI.DIODE	
	D319	1SS119	SI.DIODE	
	D331	1SS119	SI.DIODE	
	D332	1SS119	SI.DIODE	
	D341	1SS119	SI.DIODE	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C101	QETB1EM-106	10MF 25V AL E.CAPAC	
	C102	QETB1EM-106	10MF 25V AL E.CAPAC	
	C103	QCS21HJ-470	47PF 50V CER.CAPACI	
	C104	QCS21HJ-470	47PF 50V CER.CAPACI	
	C105	QETB1EM-476	47MF 25V AL E.CAPAC	
	C106	QETB1EM-476	47MF 25V AL E.CAPAC	
	C107	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C108	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C113	QETB1AM-107	100MF 10V AL E.CAPAC	
	C114	QETB1AM-107	100MF 10V AL E.CAPAC	
	C115	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C116	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C121	QETB1HM-105	1MF 50V AL E.CAPAC	
	C122	QETB1HM-105	1MF 50V AL E.CAPAC	
	C123	QCS21HJ-470	47PF 50V CER.CAPACI	
	C124	QCS21HJ-470	47PF 50V CER.CAPACI	
	C125	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C126	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C127	QETB1CM-476	47MF 16V AL E.CAPAC	
	C128	QETB1CM-476	47MF 16V AL E.CAPAC	
	C129	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C130	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C131	QCZ0202-155	1.5MF 25V CER.RESIST	
	C141	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C142	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C143	QETB1AM-107	100MF 10V AL E.CAPAC	
	C144	QETB1AM-107	100MF 10V AL E.CAPAC	
	C145	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C146	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C147	QETB1AM-107	100MF 10V AL E.CAPAC	
	C148	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C149	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C150	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C151	QETB1HM-474	0.47MF 50V ELECTRO	
	C152	QETB1HM-474	0.47MF 50V ELECTRO	
	C153	QETC1HM-224ZM	0.22MF 50V E.CAPACITO	
	C154	QETC1HM-224ZM	0.22MF 50V E.CAPACITO	
	C155	QFV81HJ-124	0.12MF 50V THIN FILM	
	C156	QFV81HJ-124	0.12MF 50V THIN FILM	
	C157	QETC1HM-224ZM	0.22MF 50V E.CAPACITO	
	C158	QETC1HM-224ZM	0.22MF 50V E.CAPACITO	
	C159	QFV81HJ-473	0.047MF 50V THIN FILM	
	C160	QFV81HJ-473	0.047MF 50V THIN FILM	
	C161	QFV81HJ-104	0.1MF 50V THIN FILM	
	C162	QFV81HJ-104	0.1MF 50V THIN FILM	
	C163	QFN81HJ-183	0.018MF 50V METAL.MYLA	
	C164	QFN81HJ-183	0.018MF 50V METAL.MYLA	
	C165	QFV71HJ-393ZM	0.039MF 50V THIN FILM	
	C166	QFV71HJ-393ZM	0.039MF 50V THIN FILM	
	C167	QFN81HJ-682	6800PF 50V METAL.MYLA	
	C168	QFN81HJ-682	6800PF 50V METAL.MYLA	
	C169	QFN81HJ-153	0.015MF 50V MYLAR CAPA	
	C170	QFN81HJ-153	0.015MF 50V MYLAR CAPA	
	C171	QFN81HJ-272	2700PF 50V METAL.MYLA	
	C172	QFN81HJ-272	2700PF 50V METAL.MYLA	
	C173	QFN81HJ-562	5600PF 50V METAL.MYLA	
	C174	QFN81HJ-562	5600PF 50V METAL.MYLA	
	C175	QFN81HJ-102	1000PF 50V METAL.MYLA	
	C176	QFN81HJ-102	1000PF 50V METAL.MYLA	
	C177	QFN81HJ-222	2200PF 50V METAL.MYLA	
	C178	QFN81HJ-222	2200PF 50V METAL.MYLA	
	C179	QCS31HJ-471Z	470PF 50V CER.CAPACI	
	C180	QCS31HJ-471Z	470PF 50V CER.CAPACI	
	C181	QCS31HJ-471Z	470PF 50V CER.CAPACI	
	C182	QCS31HJ-471Z	470PF 50V CER.CAPACI	
	C183	QETB1AM-107	100MF 10V AL E.CAPAC	
	C184	QETB1AM-107	100MF 10V AL E.CAPAC	
	C185	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C186	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C187	QFN81HJ-104	0.1MF 50V METAL.MYLA	
	C188	QFN81HJ-104	0.1MF 50V METAL.MYLA	
	C189	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C190	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C191	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C192	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C193	QCS21HJ-470	47PF 50V CER.CAPACI	
	C194	QCS21HJ-470	47PF 50V CER.CAPACI	
	C195	QETB1CM-476	47MF 16V AL E.CAPAC	
	C196	QETB1CM-476	47MF 16V AL E.CAPAC	
	C197	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C198	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C199	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C200	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C201	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C202	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C203	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C204	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C205	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C206	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C207	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C208	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C210	QETB1CM-107	100MF 16V AL E.CAPAC	
	C211	QFV81HJ-104	0.1MF 50V THIN FILM	
	C212	QFV81HJ-104	0.1MF 50V THIN FILM	
	C213	QETB1CM-476	47MF 16V AL E.CAPAC	
	C214	QETB1CM-476	47MF 16V AL E.CAPAC	
	C215	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C216	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C221	QCS21HJ-470	47PF 50V CER.CAPACI	
	C222	QCS21HJ-470	47PF 50V CER.CAPACI	
	C223	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C224	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C225	QETB1CM-476	47MF 16V AL E.CAPAC	
	C227	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C228	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C261	QETB1EM-106	10MF 25V AL E.CAPAC	
	C262	QETB1HM-105	1MF 50V AL E.CAPAC	
	C263	QFN81HJ-473	0.047MF 50V METAL.MYLA	
	C264	QETB1CM-476	47MF 16V AL E.CAPAC	
	C265	QFN81HJ-102	1000PF 50V METAL.MYLA	
	C271	QETB0JM-227	220MF 6.3V E.CAPACITO	
	C272	QETB0JM-227	220MF 6.3V E.CAPACITO	
	C273	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C274	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C281	QETB1AM-227	220MF 10V E.CAPACITO	
	C282	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C284	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C286	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C287	QETB1CM-228M	2200MF 16V E.CAPACITO	
	C288	QFV81HJ-104	0.1MF 50V THIN FILM	
	C289	QETB1AM-227	220MF 10V E.CAPACITO	
	C290	QFV81HJ-104	0.1MF 50V THIN FILM	
	C291	QCS31HJ-391Z	390PF 50V CER.CAPACI	
	C301	QEAD0HZ-479A	47000MF E.CAPACITO	
	C302	QCZ0202-155	1.5MF 25V CER.RESIST	
	C304	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C306	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C309	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C314	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C315	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C316	QCBB1HK-471Y	470PF 50V CER.CAPACI	
	C318	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C319	QER61VM-476ZM	47MF 35V ELECTRO	
	C320	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C332	QCBB1HK-471Y	470PF 50V CER.CAPACI	
	C341	QER51HM-474G	0.47MF 50V AL E.CAPAC	
	C342	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C343	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C345	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C351	QEK51HM-226	22MF 50V AL E.CAPAC	
	C352	QEK51HM-226	22MF 50V AL E.CAPAC	
	C361	QFV81HJ-473	0.047MF 50V THIN FILM	
	C893	QCS21HJ-331	330PF 50V CER.CAPACI	
	C894	QCS21HJ-331A	330PF 50V CERAMIC	
	C981	QFV81HJ-104	0.1MF 50V THIN FILM	
	C982	QFV81HJ-104	0.1MF 50V THIN FILM	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R101	QRD161J-221	220 1/6W CARBON RES	
	R102	QRD161J-221	220 1/6W CARBON RES	
	R103	QRD161J-473	47K 1/6W CARBON RES	
	R104	QRD161J-473	47K 1/6W CARBON RES	
	R105	QRD167J-102	1K 1/6W CARBON RES	
	R106	QRD167J-102	1K 1/6W CARBON RES	
	R107	QRD161J-104	100K 1/6W CARBON RES	
	R108	QRD161J-104	100K 1/6W CARBON RES	
	R111	QRD167J-102	1K 1/6W CARBON RES	
	R112	QRD167J-102	1K 1/6W CARBON RES	
	R121	QRD161J-473	47K 1/6W CARBON RES	
	R122	QRD161J-473	47K 1/6W CARBON RES	
	R123	QRD167J-102	1K 1/6W CARBON RES	
	R124	QRD167J-102	1K 1/6W CARBON RES	
	R125	QRD161J-242	2.4K 1/6W CARBON RES	
	R126	QRD161J-242	2.4K 1/6W CARBON RES	
	R127	QRD161J-104	100K 1/6W CARBON RES	
	R128	QRD161J-104	100K 1/6W CARBON RES	
	R129	QRD161J-473	47K 1/6W CARBON RES	
	R130	QRD161J-473	47K 1/6W CARBON RES	
⚠	R141	QRV144F-2200A	1/4W CONST.META	
	R142	QRD161J-301	300 1/6W CARBON RES	
	R143	QRD167J-131	130 1/6W CARBON RES	
	R151	QRD167J-113	11K 1/6W CARBON RES	
	R152	QRD167J-113	11K 1/6W CARBON RES	
	R153	QRD167J-113	11K 1/6W CARBON RES	
	R154	QRD167J-113	11K 1/6W CARBON RES	
	R191	QRD161J-473	47K 1/6W CARBON RES	
	R192	QRD161J-473	47K 1/6W CARBON RES	
	R193	QRD161J-103	10K 1/6W CARBON RES	
	R194	QRD161J-103	10K 1/6W CARBON RES	
	R195	QRD161J-393	39K 1/6W CARBON RES	
	R196	QRD161J-393	39K 1/6W CARBON RES	
	R197	QRD161J-473	47K 1/6W CARBON RES	
	R198	QRD161J-473	47K 1/6W CARBON RES	
	R201	QRD161J-224	220K 1/6W CARBON RES	
	R202	QRD161J-224	220K 1/6W CARBON RES	
	R203	QRD161J-124	120K 1/6W CARBON RES	
	R204	QRD161J-124	120K 1/6W CARBON RES	
	R205	QRD161J-124	120K 1/6W CARBON RES	
	R206	QRD161J-124	120K 1/6W CARBON RES	
	R221	QRD161J-912	9.1K 1/6W CARBON RES	
	R222	QRD161J-912	9.1K 1/6W CARBON RES	
	R223	QRD161J-182	1.8K 1/6W CARBON RES	
	R224	QRD161J-182	1.8K 1/6W CARBON RES	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R225	QRD167J-332	3.3K 1/6W CARBON RES	
	R226	QRD167J-332	3.3K 1/6W CARBON RES	
	R227	QRD161J-473	47K 1/6W CARBON RES	
	R228	QRD161J-473	47K 1/6W CARBON RES	
	R231	QRD161J-103	10K 1/6W CARBON RES	
	R232	QRD161J-103	10K 1/6W CARBON RES	
	R233	QRD161J-103	10K 1/6W CARBON RES	
	R234	QRD161J-103	10K 1/6W CARBON RES	
	R241	QRD161J-221	220 1/6W CARBON RES	
	R242	QRD161J-221	220 1/6W CARBON RES	
	R243	QRD161J-221	220 1/6W CARBON RES	
	R244	QRD161J-221	220 1/6W CARBON RES	
	R245	QRD161J-103	10K 1/6W CARBON RES	
	R246	QRD161J-103	10K 1/6W CARBON RES	
	R247	QRD161J-103	10K 1/6W CARBON RES	
	R248	QRD161J-103	10K 1/6W CARBON RES	
	R261	QRD161J-513	51K 1/6W CARBON RES	
	R262	QRD161J-204	200K 1/6W CARBON RES	
	R263	QRD161J-222	2.2K 1/6W CARBON RES	
	R264	QRD167J-102	1K 1/6W CARBON RES	
	R265	QRD161J-104	100K 1/6W CARBON RES	
	R266	QRD161J-103	10K 1/6W CARBON RES	
	R267	QRD161J-473	47K 1/6W CARBON RES	
	R268	QRD161J-393	39K 1/6W CARBON RES	
	R269	QRD167J-562	5.6K 1/6W CARBON RES	
⚠	R271	QRV144F-3300	1/4W M.FILM	
	R272	QRD161J-391	390 1/6W CARBON RES	
	R273	QRD167J-223	22K 1/6W CARBON RES	
	R274	QRD167J-223	22K 1/6W CARBON RES	
	R275	QRD167J-152	1.5K 1/6W CARBON RES	
	R276	QRD161J-563	56K 1/6W CARBON RES	
⚠	R281	QRD14CJ-3R3S	3.3 1/4W UNF.CARBON	
⚠	R282	QRD14CJ-3R3S	3.3 1/4W UNF.CARBON	
⚠	R291	QRD14CJ-3R3S	3.3 1/4W UNF.CARBON	
⚠	R292	QRD14CJ-3R3S	3.3 1/4W UNF.CARBON	
	R295	QRD167J-102	1K 1/6W CARBON RES	
	R296	QRD161J-221	220 1/6W CARBON RES	
⚠	R297	QRD14CJ-220S	22 1/4W UNF.CARBON	
⚠	R298	QRD14CJ-220S	22 1/4W UNF.CARBON	
	R301	QRD161J-103	10K 1/6W CARBON RES	
	R302	QRD161J-103	10K 1/6W CARBON RES	
	R303	QRD161J-473	47K 1/6W CARBON RES	
	R305	QRD161J-103	10K 1/6W CARBON RES	
	R306	QRD161J-103	10K 1/6W CARBON RES	
	R307	QRD161J-103	10K 1/6W CARBON RES	
	R308	QRD161J-470	47 1/6W CARBON RES	
	R311	QRD167J-431	430 1/6W CARBON RES	
	R312	QRD161J-391	390 1/6W CARBON RES	
	R313	QRD167J-431	430 1/6W CARBON RES	
	R314	QRD167J-511	510 1/6W CARBON RES	
	R315	QRD161J-331	330 1/6W CARBON RES	
	R316	QRD161J-331	330 1/6W CARBON RES	
	R331	QRD161J-221	220 1/6W CARBON RES	
	R332	QRD161J-221	220 1/6W CARBON RES	
	R333	QRD161J-473	47K 1/6W CARBON RES	
	R334	QRD161J-473	47K 1/6W CARBON RES	
	R341	QRD167J-102	1K 1/6W CARBON RES	
	R342	QRD161J-103	10K 1/6W CARBON RES	
	R343	QRD167J-223	22K 1/6W CARBON RES	
	RA141	QRB099J-474	470K 1/10W NETWORK RE	
	RA142	QRB099J-474	470K 1/10W NETWORK RE	

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		SBSB3008Z	WOOD SCREW	
		E308193-001	FL HOLDER	
		E75933-001	SPACER	
		QWE350-10RR	S.WIRE	
		QWE351-10RR	VINYL WIRE	
		QWE352-24RD	S.WIRE	
	L012	ENZ8101-007	INDUCTOR	
	L015	ENZ8101-007	INDUCTOR	
	L016	ENZ8101-007	INDUCTOR	
	L017	ENZ8101-007	INDUCTOR	
	L018	ENZ8101-007	INDUCTOR	
	L019	ENZ8101-007	INDUCTOR	
	L020	ENZ8101-007	INDUCTOR	
	L021	ENZ8101-007	INDUCTOR	
	L022	ENZ8101-008	INDUCTOR	
	S301	ESP0001-023M	TACT SWITCH(CSRP)	
	S302	ESP0001-023M	TACT SWITCH(SEA ON/OFF)	
	S303	ESP0001-023M	TACT SWITCH(PANORAMIC SURROUND)	
	S304	ESP0001-023M	TACT SWITCH(DSP)	
	S305	ESP0001-023M	TACT SWITCH(CHURCH)	
	S306	ESP0001-023M	TACT SWITCH(HALL)	
	S307	ESP0001-023M	TACT SWITCH(DOME)	
	S308	ESP0001-023M	TACT SWITCH(LIVE)	
	S309	ESP0001-023M	TACT SWITCH(DISCO CLUB)	
	S310	ESP0001-023M	TACT SWITCH(4ch/SEP.C)	

⚠ : SAFETY PARTS

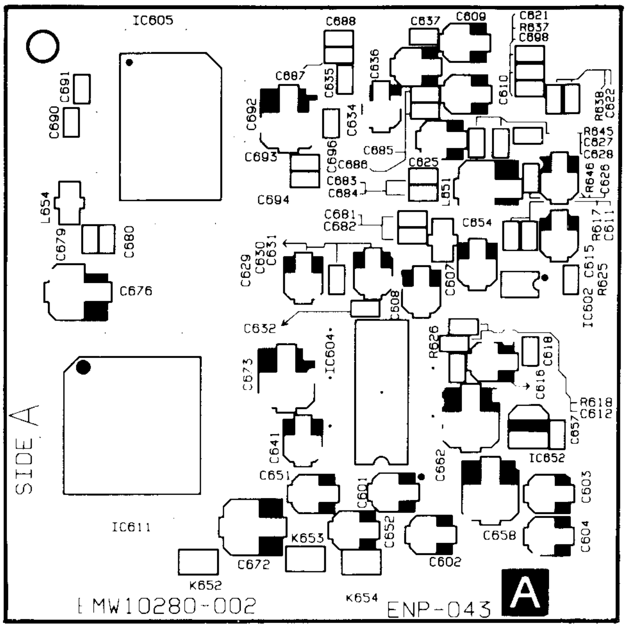
Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	S311	ESP0001-023M	TACT SWITCH(DISPLAY)	
	S312	ESP0001-023M	TACT SWITCH(DEMO)	
	S313	ESP0001-023M	TACT SWITCH(PRO LOGIC)	
	S314	ESP0001-023M	TACT SWITCH(3ch LOGIC)	
	S315	ESP0001-023M	TACT SWITCH(FREQUENCY)	
	S316	ESP0001-023M	TACT SWITCH(LEVER −)	
	S317	ESP0001-023M	TACT SWITCH(LEVER +)	
	S318	ESP0001-023M	TACT SWITCH(MEMORY)	
	S319	ESP0001-023M	TACT SWITCH(PRESET)	
	S321	ESP0001-023M	TACT SWITCH(INDIVIDUAL)	
	S322	ESP0001-023M	TACT SWITCH(SOOTHING)	
	S323	ESP0001-023M	TACT SWITCH(RELAXING)	
	S324	ESP0001-023M	TACT SWITCH(EXCITNG)	
	S325	ESP0001-023M	TACT SWITCH(SQUEEZE)	
	S326	ESP0001-023M	TACT SWITCH(VOC. MASK)	
	S327	ESP0001-023M	TACT SWITCH(KEY CTRL)	
	S328	ESP0001-023M	TACT SWITCH(SCRATCH)	
	S329	ESP0001-023M	TACT SWITCH(FLANGER)	
	X301	ECX0060-000EM	CERAMIC RES	
	EP101	E70859-001	EARTH PLATE	
	FL301	ELU0001-141	FLUORESCENT	
	HT281	E70306-001	HEAT SINK	
	JA291	EMV7122-103	CONNECT TER(3PIN)	
	JA301	EMV7123-021R	CONNECTOR(21PIN)	
	JA601	EMV7123-021	CONNECT TER(21PIN)	
	JB301	EMV7123-021	CONNECT TER(21PIN)	
	JT101	EMV7141-011	CONNECT TER(11PIN)	
	JT102	EMV7141-008M	CONNECT TER(8PIN)	
	TW101	EWT011-158	TERMINAL WI	

⚠ : SAFETY PARTS

■ENP-043 A Digital Signal Processor PC Board Ass'y

● Surface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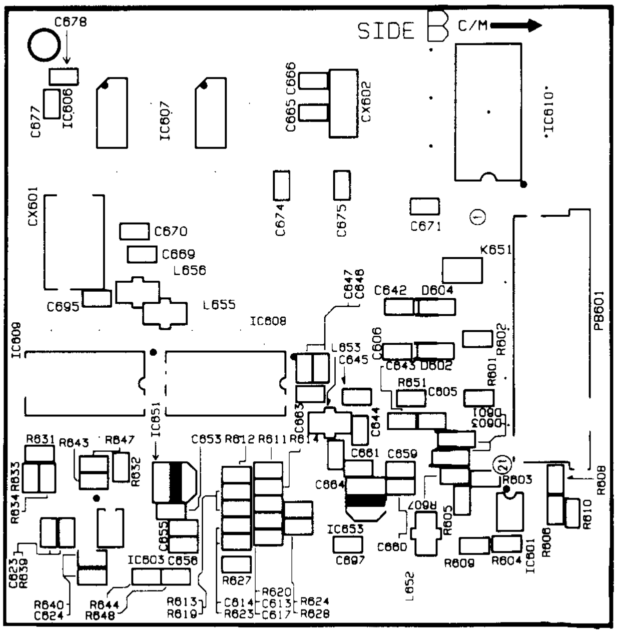
● Foil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R613
R619
C614
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R620
C613
C617
R624
R628

I.C.s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC601	XRA15218F	I.C.	
	IC602	XRA15218F	I.C.	
	IC603	XRA15218F	I.C.	
	IC604	CS5339-KS	I.C(MONO-AN ASAHI KASEI	
	IC605	LC83016E	I.C(DIGI-MO SANYO	
	IC606	MN41464AJ-08W	I.C(D-RAM) MATSUSHITA	
	IC607	MN41464AJ-08W	I.C(D-RAM) MATSUSHITA	
	IC608	LC78835KMX	I.C(DIGI-MO SANYO	
	IC609	LC78835KMX	I.C(DIGI-MO SANYO	
	IC610	LH5359MKT1	I.C(MASK-RO SHARP	
	IC611	MN170801JPU	I.C(MICRO-C MATSUSHITA	
	IC651	NJM78L05UA	I.C(MONO-AN DAINICHI	
	IC652	NJM78L05UA	I.C(MONO-AN DAINICHI	
	IC653	NJM79L05UA	I.C(MONO-AN DAINICHI	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D601	DTZ4.7(C)-X	ZENER DIODE ROHM	
	D602	DTZ4.7(C)-X	ZENER DIODE ROHM	
	D603	DTZ4.7(C)-X	ZENER DIODE ROHM	
	D604	DTZ4.7(C)-X	ZENER DIODE ROHM	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C601	NEH11CM-106RZ	10MF 16V CER.CAPACI	
	C602	NEH11CM-106RZ	10MF 16V CER.CAPACI	
	C603	NEH11EM-475RZ	4.7MF 25V CER.CAPACI	
	C604	NEH11EM-475RZ	4.7MF 25V CER.CAPACI	
	C605	NCB21HK-103AY	0.01MF 50V CER.CAPACI	
	C606	NCB21HK-103AY	0.01MF 50V CER.CAPACI	
	C607	NEH11EM-475RZ	4.7MF 25V CER.CAPACI	
	C608	NEH11EM-475RZ	4.7MF 25V CER.CAPACI	
	C609	NEH11EM-475RZ	4.7MF 25V CER.CAPACI	
	C610	NEH11EM-475RZ	4.7MF 25V CER.CAPACI	
	C611	NCB21HK-103AY	0.01MF 50V CER.CAPACI	
	C612	NCB21HK-103AY	0.01MF 50V CER.CAPACI	
	C613	NCS21HJ-222AY	2200PF 50V CER.CAPACI	
	C614	NCS21HJ-222AY	2200PF 50V CER.CAPACI	
	C615	NEH11CM-106RZ	10MF 16V CER.CAPACI	
	C616	NEH11CM-106RZ	10MF 16V CER.CAPACI	
	C617	NCB21HK-223AY	0.022MF 50V CER.CAPACI	
	C618	NCB21HK-223AY	0.022MF 50V CER.CAPACI	
	C621	NCB21HK-103AY	0.01MF 50V CER.CAPACI	
	C622	NCB21HK-103AY	0.01MF 50V CER.CAPACI	
	C623	NCS21HJ-222AY	2200PF 50V CER.CAPACI	
	C624	NCS21HJ-222AY	2200PF 50V CER.CAPACI	
	C625	NEH11CM-106RZ	10MF 16V CER.CAPACI	
	C626	NEH11CM-106RZ	10MF 16V CER.CAPACI	
	C627	NCB21HK-223AY	0.022MF 50V CER.CAPACI	
	C628	NCB21HK-223AY	0.022MF 50V CER.CAPACI	
	C629	NEH11CM-106RZ	10MF 16V CER.CAPACI	
	C630	NCF21HZ-104AY	0.1MF 50V CER.CAPACI	
	C631	NEH11CM-106RZ	10MF 16V CER.CAPACI	
	C632	NCS21HJ-101AY	100PF 50V CER.CAPACI	
	C634	NEH11CM-106RZ	10MF 16V CER.CAPACI	
	C635	NCF21HZ-104AY	0.1MF 50V CER.CAPACI	
	C636	NEH11CM-106RZ	10MF 16V CER.CAPACI	
	C637	NCF21HZ-104AY	0.1MF 50V CER.CAPACI	
	C641	NEH11CM-106RZ	10MF 16V CER.CAPACI	
	C642	NCF21HZ-104AY	0.1MF 50V CER.CAPACI	
	C643	NCF21CZ-105AY	1MF 16V CER.CAPACI	
	C644	NCF21CZ-105AY	1MF 16V CER.CAPACI	
	C645	NCF21CZ-105AY	1MF 16V CER.CAPACI	
	C646	NCB21HK-102AY	1000PF 50V CER.CAPACI	
	C647	NCF21CZ-105AY	1MF 16V CER.CAPACI	
	C651	NEH11HM-474RZ	0.47MF 50V CER.CAPACI	
	C652	NEH11HM-474RZ	0.47MF 50V CER.CAPACI	
	C653	NCB21HK-223AY	0.022MF 50V CER.CAPACI	
	C654	NEH10JM-107RZ	100MF 6.3V CER.CAPACI	
	C655	NCF21HZ-104AY	0.1MF 50V CER.CAPACI	
	C656	NCB21HK-102AY	1000PF 50V CER.CAPACI	
	C657	NCB21HK-223AY	0.022MF 50V CER.CAPACI	
	C658	NEH10JM-107RZ	100MF 6.3V CER.CAPACI	
	C659	NCB21HK-102AY	1000PF 50V CER.CAPACI	
	C660	NCF21HZ-104AY	0.1MF 50V CER.CAPACI	
	C661	NCB21HK-223AY	0.022MF 50V CER.CAPACI	
	C662	NEH10JM-107RZ	100MF 6.3V CER.CAPACI	
	C663	NCB21HK-102AY	1000PF 50V CER.CAPACI	
	C664	NCF21HZ-104AY	0.1MF 50V CER.CAPACI	
	C665	NCS21HJ-300AY	30PF 50V C.CAPA. C.	
	C666	NCS21HJ-300AY	30PF 50V C.CAPA. C.	
	C669	NCS21HJ-9R0AYM	9PF 50V CER.CAPACI	
	C670	NCS21HJ-9R0AYM	9PF 50V CER.CAPACI	
	C671	NCB21HK-102AY	1000PF 50V CER.CAPACI	
	C672	NEH10JM-107RZ	100MF 6.3V CER.CAPACI	
	C673	NEH10JM-107RZ	100MF 6.3V CER.CAPACI	
	C674	NCF21HZ-104AY	0.1MF 50V CER.CAPACI	
	C675	NCB21HK-102AY	1000PF 50V CER.CAPACI	
	C676	NEH10JM-107RZ	100MF 6.3V CER.CAPACI	
	C677	NCB21HK-102AY	1000PF 50V CER.CAPACI	
	C678	NCF21CZ-105AY	1MF 16V CER.CAPACI	
	C679	NCB21HK-102AY	1000PF 50V CER.CAPACI	
	C680	NCF21CZ-105AY	1MF 16V CER.CAPACI	
	C681	NCF21HZ-104AY	0.1MF 50V CER.CAPACI	
	C682	NCB21HK-102AY	1000PF 50V CER.CAPACI	
	C683	NCF21HZ-104AY	0.1MF 50V CER.CAPACI	
	C684	NCB21HK-102AY	1000PF 50V CER.CAPACI	
	C685	NCF21HZ-104AY	0.1MF 50V CER.CAPACI	
	C686	NCB21HK-102AY	1000PF 50V CER.CAPACI	
	C687	NCF21HZ-104AY	0.1MF 50V CER.CAPACI	
	C688	NCB21HK-102AY	1000PF 50V CER.CAPACI	
	C690	NCB21HK-102AY	1000PF 50V CER.CAPACI	
	C691	NCF21CZ-105AY	1MF 16V CER.CAPACI	
	C692	NEH10JM-107RZ	100MF 6.3V CER.CAPACI	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C693	NCB21HK-102AY	1000PF 50V CER.CAPACI	
	C694	NCF21CZ-105AY	1MF 16V CER.CAPACI	
	C695	NCS21HJ-101AY	100PF 50V CER.CAPACI	
	C696	NCS21HJ-101AY	100PF 50V CER.CAPACI	
	C697	NCF21CZ-105AY	1MF 16V CER.CAPACI	
	C698	NCF21CZ-105AY	1MF 16V CER.CAPACI	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R601	NRSA02F-271NY	RES. C.M	
	R602	NRSA02F-271NY	RES. C.M	
	R603	NRSA02F-473NY	METAL GLAZ	
	R604	NRSA02F-473NY	METAL GLAZ	
	R605	NRSA02F-683NY	RES. C.M	
	R606	NRSA02F-683NY	RES. C.M	
	R607	NRSA02F-221NY	METAL GLAZ	
	R608	NRSA02F-221NY	METAL GLAZ	
	R609	NRSA02F-473NY	METAL GLAZ	
	R610	NRSA02F-473NY	METAL GLAZ	
	R611	NRSA02F-122NY	RES. C.M	
	R612	NRSA02F-122NY	RES. C.M	
	R613	NRSA02F-473NY	METAL GLAZ	
	R614	NRSA02F-473NY	METAL GLAZ	
	R617	NRSA02F-821NY	METAL GLAZ	
	R618	NRSA02F-821NY	METAL GLAZ	
	R619	NRSA02F-821NY	METAL GLAZ	
	R620	NRSA02F-821NY	METAL GLAZ	
	R623	NRSA02F-273NY	METAL GLAZ	
	R624	NRSA02F-273NY	METAL GLAZ	
	R625	NRSA02F-271NY	RES. C.M	
	R626	NRSA02F-271NY	RES. C.M	
	R627	NRSA02F-271NY	RES. C.M	
	R628	NRSA02F-271NY	RES. C.M	
	R631	NRSA02F-122NY	RES. C.M	
	R632	NRSA02F-122NY	RES. C.M	
	R633	NRSA02F-473NY	METAL GLAZ	
	R634	NRSA02F-473NY	METAL GLAZ	
	R637	NRSA02F-821NY	METAL GLAZ	
	R638	NRSA02F-821NY	METAL GLAZ	
	R639	NRSA02F-821NY	METAL GLAZ	
	R640	NRSA02F-821NY	METAL GLAZ	
	R643	NRSA02F-273NY	METAL GLAZ	
	R644	NRSA02F-273NY	METAL GLAZ	
	R645	NRSA02F-271NY	RES. C.M	
	R646	NRSA02F-271NY	RES. C.M	
	R647	NRSA02F-271NY	RES. C.M	
	R648	NRSA02F-271NY	RES. C.M	
	R651	NRSA02F-100NY	RES. C.M	

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	K651	ENZ8101-017T	FERRITE BEA	
	K652	ENZ8101-017T	FERRITE BEA	
	K653	ENZ8101-N01AY	FERRITE BEA	
	K654	ENZ8101-N01AY	FERRITE BEA	
	L651	EQF0703-N222NZ	INDUCTOR	
	L652	EQF0703-N222NZ	INDUCTOR	
	L653	EQF0703-N222NZ	INDUCTOR	
	L654	EQF0703-N222NZ	INDUCTOR	
	L655	EQF0703-N222NZ	INDUCTOR	
	L656	EQF0703-N222NZ	INDUCTOR	
	CX601	ECX0024-576KA1T	CRYSTAL	
	CX602	ECX0006-000KS1T	CRYSTAL	
	PB601	EMV7147-021E	CONNECT(21PIN)	

⚠ : SAFETY PARTS

XL-G90RBK

– Contents –

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CD Mechanism Ass'y and Parts List 8-4
- ■ Grease Point 8-4

Printed Circuit Board Ass'y and Parts List 8-6
- ■ ENN-403 B CD Deck PC Board Ass'y 8-6

General Exploded View and Parts List

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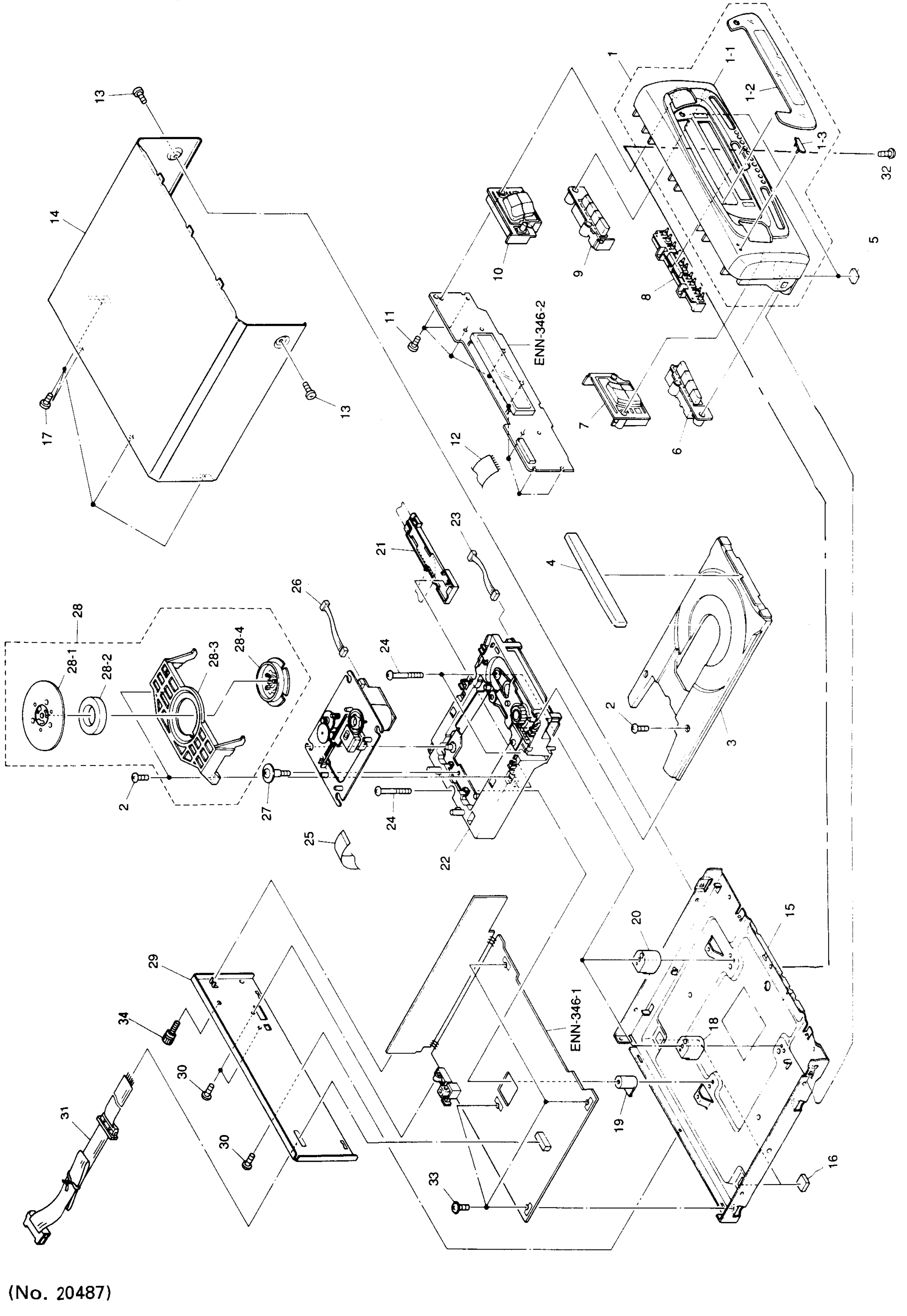
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Symbol No. M 8 M M

■ Parts List

⚠	Item	Part Number	Part Name	Q'ty	Description	Area
	1	EFP-XLG90RBKE(S	FRONT PANEL ASSY	1		
	1-1	E102630-005	FRONT PANEL	1		
	1-2	E207658-004	CD W.SCREEN	1		
	1-3	E406971-221	JVC MARK	1		
	2	SBSF3008M	TAPPING SCREW	3		
	3	E102358-222	CD TRAY	1		
	4	E308196-001	CD FITTING	1		
	5	E406855-008	SPACER	2		
	6	E207631-001	PUSH BUTTON	1		
	7	E207627-001	PUSH BUTTON	1		
	8	E207635-002	PUSH BUTTON	1		
	9	E207633-001	PUSH BUTTON	1		
	10	E207629-001	PUSH BUTTON	1		
	11	SDSF2608Z	SCREW	8		
	12	VWF1225-16TTB	FFC CABLE	1		
	13	SDSG3008M	SCREW	2		
	14	E207626-001	METAL COVER	1		
	15	E102467-002	CHASSIS BASE	1		
	16	E406855-011	SPACER	2		
	17	E73273-003	SPECIAL SCREW	4		
	18	E308200-001	MECHA STAND	1		
	19	E308201-001	MECHA STAND	1		
	20	E308199-001	MECHA STAND	1		
	21	E308181-001	FFC HOLDER	1		
	22	---------------	CD MECHANISM ASSY	1	SEE PAGE 8-4	
	23	EWS265-B410	SOCKET WIRE ASSY	1		
	24	SBST3027Z	TAPPING SCREW	3		
	25	EWPZ02-001	FFC CABLE	1		
	26	EWS266-B411	SOCKET WIRE ASSY	1		
	27	E406293-001	SPECIAL SCREW	1		
	28	E306837-005	CLAMPER ASSY	1		
	28-1	E306836-003	YOKE PLATE	1		
	28-2	E74897-002	MAGNET	1		
	28-3	E26756-002	CLAMPER BASE	1		
	28-4	E306835-001	CD CLAMPER	1		
	29	E207637-011	REAR PANEL	1		
	30	SBSG3008CC	TAPPING SCREW	2		
	31	EWP907-016	PLUG CORD ASSY	1		
	32	SSST3006M	TAPPING SCREW	1		
	33	GBSG3008CC	TAPPING SCREW	4		
	34	EE408091-001	GND TERMINAL	1		
	-	E61029-011	NUMBER LABEL	1		
	-	E70891-001	CLASS 1 LABEL	1		
	-	E406507-001	CAUTION LABEL	1		

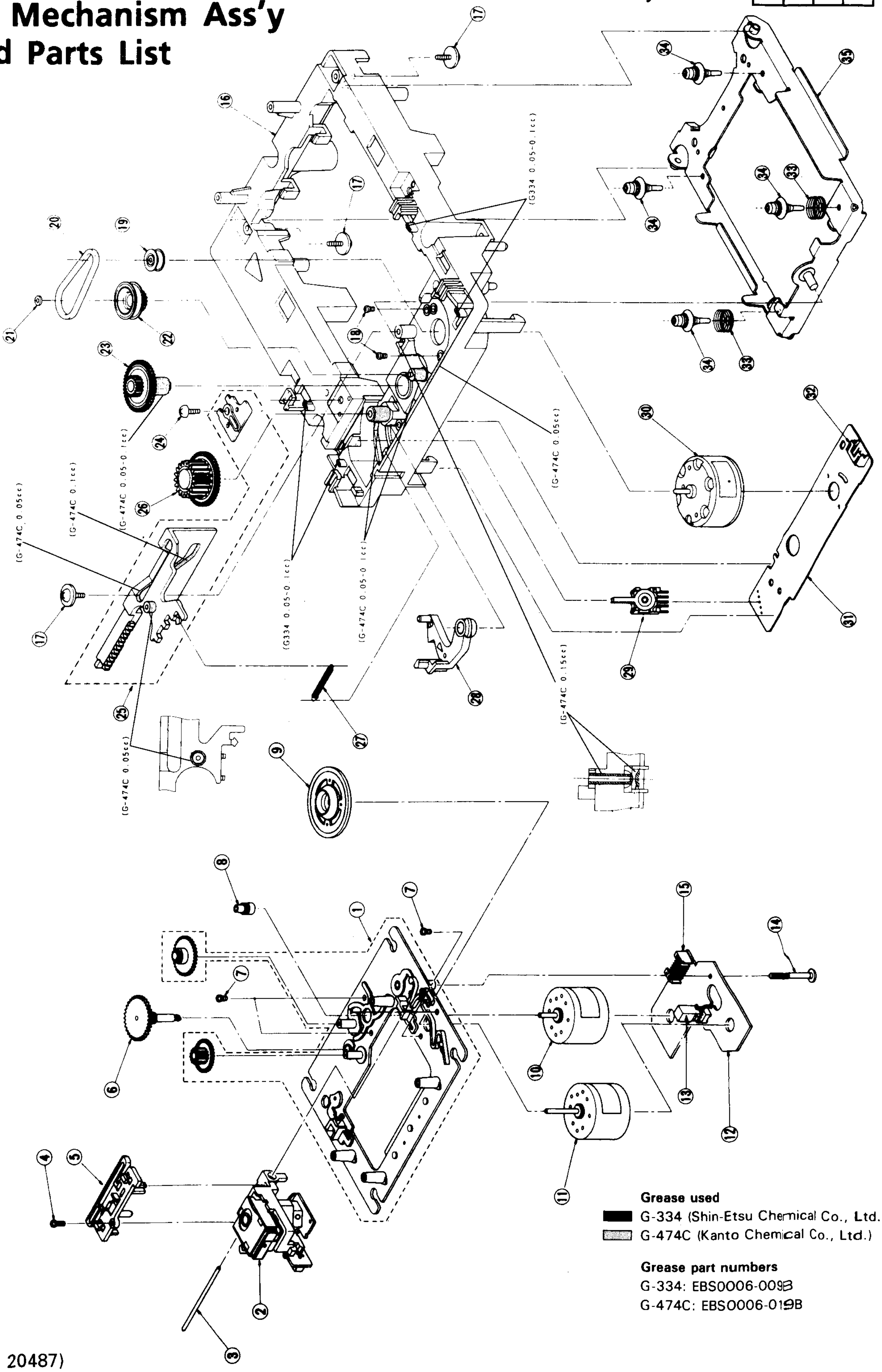
⚠ : Safety Parts

The Marks for Designated Areas

EF .... Continental Europe
EN .... Scandinavia
G ...... Germany
GI .... Italy
No mark indicates all area.

Symbol No. M 9 M M

CD Mechanism Ass'y and Parts List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24
(G-474C 0.05cc)
30
32
26
(G-474C 0.05-0.1cc)
(G-474C 0.1cc)
(G-474C 0.05cc)
17
(G334 0.05-0.1cc)
(G-474C 0.05-0.1cc)
31
29
28
27
25
(G-474C 0.15cc)
(G-474C 0.05cc)
9
8
1
7
15
14
7
6
10
13
12
11
4
5
2
3

Grease used

■ G-334 (Shin-Etsu Chemical Co., Ltd.)

▨ G-474C (Kanto Chemical Co., Ltd.)

Grease part numbers

G-334: EBS0006-009B

G-474C: EBS0006-019B

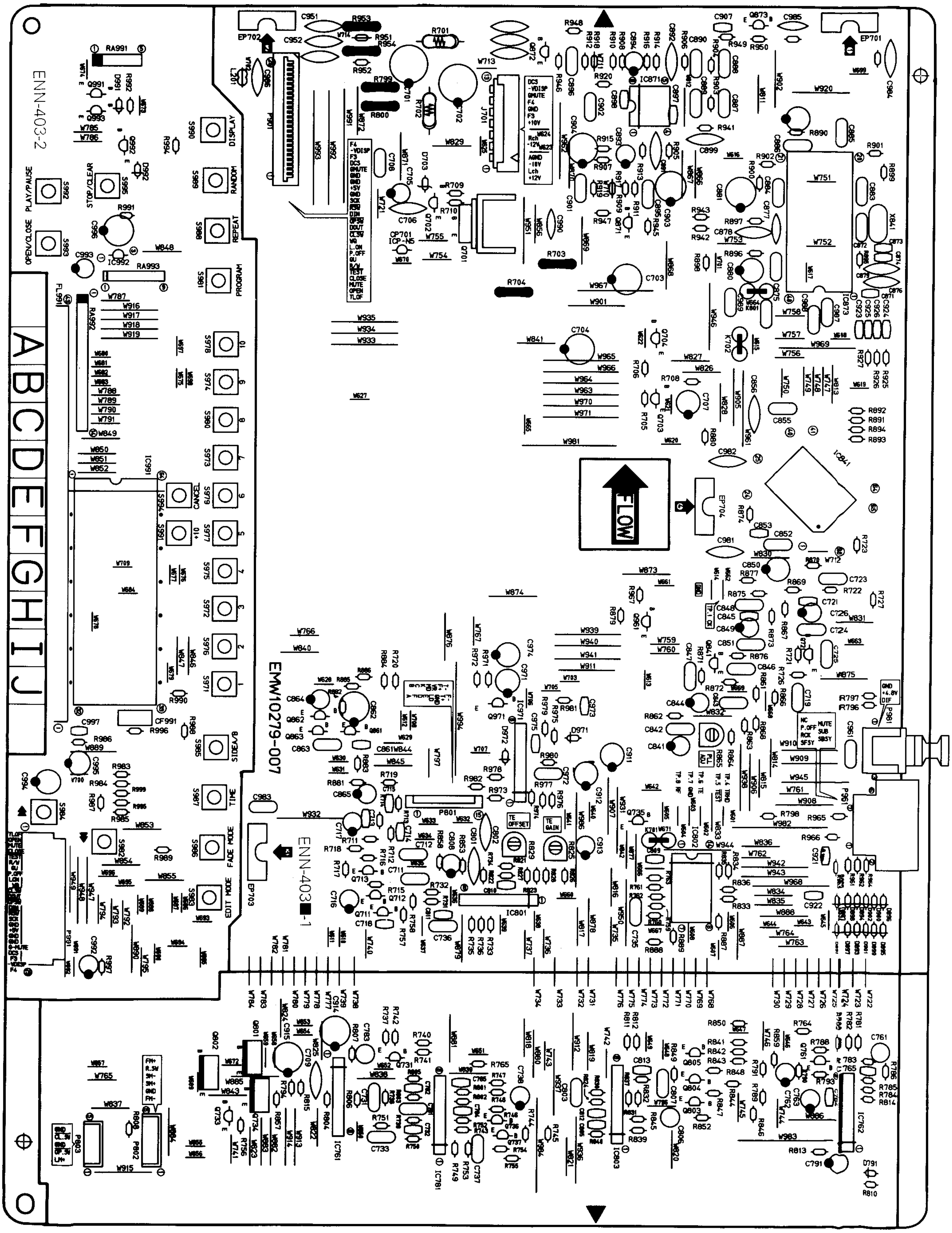
Symbol No. M 9 M M

■ Parts List (CD Mechanism Ass'y)

Item	Part Number	Part Name	Q'ty	Description	Area
1	EPB-002A	MECHANISM BASE ASSY	1		
2	OPTIMA-6S	PICK UP ASS'Y	1		
3	E406777-001	SHAFT	1		
4	SDSF2006Z	SCREW	1		
5	E307746-001	CD RACK	1		
6	EPB-003A	MECHANISM BASE ASSY	1		
7	SDSP2003N	SCREW	4		
8	E406750-001	PINION GEAR	1		
9	EPB-001C	TURNTABLE	1		
10	E406784-001	DC MOTOR	1		
11	E406783-001	DC MOTOR	1		
12	EMW10190-001(S)	CIRCUIT BOARD	1		
13	ESB1100-005	LEAF SWITCH	1		
14	E75832-001	SPECIAL SCREW	1		
15	EMV5109-006B	PLUG ASSY	1	6PIN	
16	E102357-221	LOADING BASE	1		
17	E65923-003	SCREW	3		
18	SPSK2640Z	SCREW	2		
19	E75984-001	MOTOR PULLEY	1		
20	E75950-002	BELT	1		
21	E72024-001	SPEED NUT	1		
22	E75985-001	GEAR	1		
23	E75986-002	GEAR	1		
24	SBSF3008Z	SCREW	1		
25	E307252-221	CAM - PLATE	1		
26	E75987-001	REEL GEAR	1		
27	E75989-001	SPRING	1		
28	E307162-221	LEVER	1		
29	ESS1200-002	SLIDE SWITCH	1		
30	RF-500TB-12560	MOTOR	1		
31	EMW10255-002(S)	CIRCUIT BOARD	1		
32	EMV5109-005B	PLUG ASSY	1	5PIN	
33	E406871-001	SPRING	2		
34	E406294-002	INSULATOR	4		
35	E307179-221	ELEVATOR BASE ASSY	1		

Printed Circuit Board Ass'y and Parts List

■ ENN-403 B CD PC Board Ass'y


ENN-403-2
EMW10279-007
ENN-403■-1
FLOW
A
B
C
D
E
F
G
H
I
J
DISPLAY
RANDOM
REPEAT
PROGRAM
PLAY/PAUSE
STOP/CLEAR
OPEN/CLOSE
CANCEL
+10
SIDEA/B
TIME
FADE MODE
EDIT MODE
TE OFFSET
TE GAIN
PLL ADJ
EP701
EP702
EP703
EP704
IC871
IC841
IC801
IC991
IC992
IC761
IC762
IC781
IC803
IC971
IC873
J701
P801
P901
P961
P991
P802
P803
FL991
RA991
RA992
RA993
CF991
GND
+4.8V
DIF
NC
P.OFF
RCK
SFSY
MUTE
SUB
SBSY

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q701	2SB1565(E,F)	SI.TRANSIST ROHM	
	Q702	2SC1740(R,S)	SI.TRANSIST ROHM	
	Q703	2SA934(Q,R)	SI.TRANSIST ROHM	
	Q704	DTA144ES	DIGITAL TRA ROHM	
	Q711	2SC535(B,C)	SILICON	
	Q712	2SC1740S(R,S)	SI.TRANSIST ROHM	
	Q713	2SA933S(RS)	SI.TRANSIST	
	Q721	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q731	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q733	2SC2060(Q,R)	SI.TRANSIST ROHM	
	Q734	2SB1357(E,F)	SI.TRANSIST ROHM	
	Q735	DTA144WS	DIGITAL TRA ROHM	
	Q736	2SA933S(RS)	SI.TRANSIST	
	Q737	2SA933S(RS)	SI.TRANSIST	
	Q761	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q801	2SD2037(E,F)	SI.TRANSIST ROHM	
	Q802	2SB1357(E,F)	SI.TRANSIST ROHM	
	Q803	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q804	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q805	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q841	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q861	2SA933S(RS)	SI.TRANSIST	
	Q862	2SC1740S(R,S)	SI.TRANSIST ROHM	
	Q863	2SC1740S(R,S)	SI.TRANSIST ROHM	
	Q871	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q872	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q873	DTA144ES	DIGITAL TRA ROHM	
	Q961	2SD2144S(VW)	SI.TRANSIST ROHM	EF
	Q961	2SD2144S(VW)	SI.TRANSIST ROHM	EN
	Q961	2SD2144S(VW)	SI.TRANSIST ROHM	G
	Q961	2SD2144S(VW)	SI.TRANSIST ROHM	GI
	Q971	2SA934(Q,R)	SI.TRANSIST ROHM	
	Q991	DTA114YS	DIGITAL TRA ROHM	
	Q992	DTC114YS	DIGITAL TRA ROHM	
	Q993	DTC114YS	DIGITAL TRA ROHM	

⚠ : SAFETY PARTS

I.C.s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC761	STA341M(A)	TRANSISTOR	
	IC762	M5218AL	I.C(MONO-AN MITSUBISHI	
	IC781	M5218AL	I.C(MONO-AN MITSUBISHI	
	IC801	NJM072L	I.C.	
	IC802	XRA10339	I.C(MONO-AN EXAR JAPAN	
	IC803	M5218AL	I.C(MONO-AN MITSUBISHI	
	IC841	YM7121C	I.C(DIGI-MO YAMAHA	
	IC871	M5218AP	I.C(MONO-AN MITSUBISHI	
	IC873	JCE4501	I.C(DIGI-MO MATSUSHITA	
	IC971	NJM2904L	I.C.	
	IC991	HD404019RC13S	I.C(MICRO-C HITACHI	
	IC992	MN1281(P,Q)	I.C(DIGI-MO MATSUSHITA	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D703	MTZ5.6JB	ZENER DIODE ROHM	
	D791	1SS119	SI.DIODE	
	D971	MTZ2.4JB	ZENER DIODE ROHM	
	D972	1SS119	SI.DIODE	
	D991	1SS119	SI.DIODE	
	D992	1SS119	SI.DIODE	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C701	QETB1CM-108M	1000MF 16V ELECTRO	
	C702	QETB1CM-108M	1000MF 16V ELECTRO	
	C703	QETB1CM-227	220MF 16V AL E.CAPAC	
	C704	QETB1CM-227	220MF 16V AL E.CAPAC	
	C705	QETB1CM-476	47MF 16V AL E.CAPAC	
	C706	QCF21HP-223A	0.022MF 50V CER.CAPACI	
	C707	QETB0JM-227	220MF 6.3V E.CAPACITO	
	C709	QCF21HP-223A	0.022MF 50V CER.CAPACI	
	C711	QFN81HJ-472	4700PF 50V MYLAR CAPA	
	C712	QFN81HJ-472	4700PF 50V MYLAR CAPA	
	C713	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C714	QCSB1HK-3R9	3.9PF 50V CER.CAPACI	
	C715	QCBB1HK-471Y	470PF 50V CER.CAPACI	
	C716	QETB1EM-106	10MF 25V AL E.CAPAC	
	C717	QETB1CM-476	47MF 16V AL E.CAPAC	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C718	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C719	QFN81HJ-183	0.018MF 50V METAL.MYLA	
	C721	QCSB1HJ-470	47PF 50V CER.CAPACI	
	C723	QCZ0202-155	1.5MF 25V CER.RESIST	
	C724	QFN81HJ-563	0.056MF 50V MYLAR	
	C725	QFVB1HJ-564N	0.56MF 50V T.FILM	
	C726	QETB1EM-106	10MF 25V AL E.CAPAC	
	C731	QFN81HJ-183	0.018MF 50V METAL.MYLA	
	C732	QCBB1HK-271Y	270PF 50V CER.CAPACI	
	C733	QFN81HJ-393	0.039MF 50V METAL.MYLA	
	C735	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C736	QFVB1HJ-224N	0.22MF 50V T.FILM	
	C737	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C738	QETB1CM-476	47MF 16V AL E.CAPAC	
	C761	QEN51HM-225	2.2MF 50V NP E.CAPAC	
	C762	QETB1EM-226	22MF 25V E.CAPACITO	
	C763	QETB0JM-227	220MF 6.3V E.CAPACITO	
	C764	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C765	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C781	QFN81HJ-272	2700PF 50V METAL.MYLA	
	C782	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C783	QEN51HM-225	2.2MF 50V NP E.CAPAC	
	C784	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C785	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C791	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C801	QCT26CH-151	150PF 50V CER.CAPACI	
	C802	QCT26CH-101	100PF 50V CER.CAPACI	
	C803	QFN81HJ-223	0.022MF 50V METAL.MYLA	
	C805	QCSB1HJ-470	47PF 50V CER.CAPACI	
	C806	QEN51HM-225	2.2MF 50V NP E.CAPAC	
	C807	QFN81HJ-563	0.056MF 50V MYLAR	
	C808	QETB1CM-476	47MF 16V AL E.CAPAC	
	C809	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C810	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C811	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C812	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C813	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C841	QETB1AM-107	100MF 10V AL E.CAPAC	
	C842	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C843	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C844	QETB1EM-106	10MF 25V AL E.CAPAC	
	C845	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C846	QFVB1HJ-105N	1MF 50V T.FILM	
	C847	QFN81HJ-182	1800PF 50V METAL.MYLA	
	C848	QFVB1HJ-224N	0.22MF 50V T.FILM	
	C849	QETB1EM-106	10MF 25V AL E.CAPAC	
	C850	QETB0JM-227	220MF 6.3V E.CAPACITO	
	C851	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C852	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C853	QCSB1HJ-100	10PF 50V CER.CAPACI	EF
	C853	QCSB1HJ-100	10PF 50V CER.CAPACI	EN
	C853	QCSB1HJ-100	10PF 50V CER.CAPACI	G
	C853	QCSB1HJ-100	10PF 50V CER.CAPACI	GI
	C855	QFN81HJ-473	0.047MF 50V METAL.MYLA	
	C861	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C862	QER61CM-107ZM	100MF 16V AL E.CAPAC	
	C863	QFN81HJ-473	0.047MF 50V METAL.MYLA	
	C864	QER51EM-106	10MF 25V E.CAPACITO	
	C865	QETB1HM-105	1MF 50V AL E.CAPAC	
	C872	QCZ0202-155	1.5MF 25V CER.RESIST	
	C873	QCT30CH-120Y	12PF 50V CER.CAPACI	
	C874	QCT30CH-3R9Y	3.9PF 50V CER.CAPACI	
	C875	QCS21HJ-5R0	5PF 50V CER.CAPACI	
	C876	QCY21HK-392	3900PF 50V CERAMIC	
	C877	QCS21HJ-180A	18PF 50V CER.CAPACI	
	C878	QCS21HJ-5R0	5PF 50V CER.CAPACI	
	C880	QETB0JM-227	220MF 6.3V E.CAPACITO	
	C881	QETB0JM-477	470MF 6.3V AL E.CAPAC	
	C883	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C884	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C885	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C886	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C887	QFN81HJ-102	1000PF 50V METAL.MYLA	
	C888	QFN81HJ-102	1000PF 50V METAL.MYLA	
	C889	QFN81HJ-182	1800PF 50V METAL.MYLA	
	C890	QFN81HJ-182	1800PF 50V METAL.MYLA	
	C891	QCS21HJ-121	120PF 50V CER.CAPACI	
	C892	QCS21HJ-121	120PF 50V CER.CAPACI	
	C893	EEZ2505-226	22MF AL E.CAPAC	
	C894	EEZ2505-226	22MF AL E.CAPAC	
	C895	QFN81HJ-683	0.068MF 50V METAL.MYLA	
	C896	QFN81HJ-683	0.068MF 50V METAL.MYLA	
	C897	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C898	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C899	QCY31HK-122Z	1200PF 50V CER.CAPACI	
	C901	QFN81HJ-123	0.012MF 50V MYLAR	
	C902	QFN81HJ-123	0.012MF 50V MYLAR	
	C907	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C911	QETB1CM-107	100MF 16V AL E.CAPAC	
	C912	QETB1CM-107	100MF 16V AL E.CAPAC	
	C913	QETB1AM-107	100MF 10V AL E.CAPAC	
	C914	QETB1CM-107	100MF 16V AL E.CAPAC	
	C915	QETB1CM-107	100MF 16V AL E.CAPAC	
	C961	QCZ0202-155	1.5MF 25V CER.RESIST	EF
	C961	QCZ0202-155	1.5MF 25V CER.RESIST	EN

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C961	QCZ0202-155	1.5MF 25V M. C. CAPA	G
	C961	QCZ0202-155	1.5MF 25V M. C. CAPA	GI
	C971	QER51CM-476	47MF 16V AL E.CAPAC	
	C972	QFN81HJ-103	0.01MF 50V METAL.MYLA	
	C973	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C974	QER51CM-476	47MF 16V AL E.CAPAC	
	C975	QCHB1EZ-223	0.022MF 25V CER.CAPACI	
	C983	QFN81HJ-473	0.047MF 50V METAL.MYLA	
	C984	QCS21HJ-471	470PF 50V CER. CA	
	C986	QCS21HJ-221	220PF 50V CER. CA	
	C987	QCZ0202-155	1.5MF 25V CER.RESIST	
	C990	QCS21HJ-220	22PF 50V CER. CA	
	C992	QER51HM-475	4.7MF 50V AL E.CAPAC	
	C993	QER51HM-475	4.7MF 50V AL E.CAPAC	
	C994	QEK51HM-226	22MF 50V AL E.CAPAC	
	C995	QER50JM-107	100MF 6.3V AL E.CAPAC	
	C996	QER51AM-227	220MF 10V AL E.CAPAC	
	C997	QCHB1EZ-223	0.022MF 25V CER.CAPACI	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
⚠	R701	PTH61G25AR4R7M	POSITIVE T	
⚠	R702	PTH61G25AR4R7M	POSITIVE T	
⚠	R703	QRZ0077-100	10 1/4W FUSIBLE RE	
⚠	R704	QRZ0077-100	10 1/4W FUSIBLE RE	
	R705	QRD161J-472	4.7K 1/6W CARBON RES	
	R706	QRD161J-681	680 1/6W CARBON RES	
	R708	QRD161J-472	4.7K 1/6W CARBON RES	
	R709	QRD161J-122	1.2K 1/6W CARBON RES	
	R710	QRD167J-121	120 1/6W CARBON RES	
	R711	QRD161J-183	18K 1/6W CARBON RES	
	R712	QRD161J-432	4.3K 1/6W CARBON RES	
	R713	QRD161J-391	390 1/6W CARBON RES	
	R714	QRD161J-221	220 1/6W CARBON RES	
	R715	QRD167J-152	1.5K 1/6W CARBON RES	
	R716	QRD161J-561	560 1/6W CARBON RES	
	R717	QRD167J-431	430 1/6W CARBON RES	
	R718	QRD161J-512	5.1K 1/6W CARBON RES	
	R719	QRD167J-152	1.5K 1/6W CARBON RES	
	R720	QRD161J-271	270 1/6W CARBON RES	
	R721	QRD167J-471	470 1/6W CARBON RES	
	R722	QRD167J-682	6.8K 1/6W CARBON RES	
	R723	QRD161J-103	10K 1/6W CARBON RES	
	R726	QRD167J-102	1K 1/6W CARBON RES	
	R727	QRD161J-183	18K 1/6W CARBON RES	
	R731	QRD161J-104	100K 1/6W CARBON RES	
	R732	QRD161J-104	100K 1/6W CARBON RES	
	R733	QRD161J-394	390K 1/6W CARBON RES	
	R734	QRD161J-394	390K 1/6W CARBON RES	
	R735	QRD167J-121	120 1/6W CARBON RES	
	R736	QRD161J-182	1.8K 1/6W CARBON RES	
	R737	QRD161J-681	680 1/6W CARBON RES	
	R738	QRD161J-473	47K 1/6W CARBON RES	
	R739	QRD161J-331	330 1/6W CARBON RES	
	R740	QRD161J-183	18K 1/6W CARBON RES	
	R741	QRD161J-103	10K 1/6W CARBON RES	
	R742	QRD161J-104	100K 1/6W CARBON RES	
	R743	QRD161J-474	470K 1/6W CARBON RES	
	R744	QRD167J-562	5.6K 1/6W CARBON RES	
	R745	QRD161J-184	180K 1/6W CARBON RES	
	R746	QRD161J-183	18K 1/6W CARBON RES	
	R747	QRD161J-473	47K 1/6W CARBON RES	
	R748	QRD167J-471	470 1/6W CARBON RES	
	R749	QRD161J-105	1M 1/6W CARBON RES	
	R750	QRD161J-273	27K 1/6W CARBON RES	
	R751	QRD161J-394	390K 1/6W CARBON RES	
	R752	QRD161J-333	33K 1/6W CARBON RES	
	R753	QRD161J-394	390K 1/6W CARBON RES	
	R754	QRD167J-102	1K 1/6W CARBON RES	
	R755	QRD161J-105	1M 1/6W CARBON RES	
	R756	QRD161J-221	220 1/6W CARBON RES	
	R757	QRD161J-105	1M 1/6W CARBON RES	
	R758	QRD161J-105	1M 1/6W CARBON RES	
	R759	QRD161J-104	100K 1/6W CARBON RES	
	R760	QRD167J-332	3.3K 1/6W CARBON RES	
	R761	QRD161J-104	100K 1/6W CARBON RES	
	R762	QRD167J-682	6.8K 1/6W CARBON RES	
	R763	QRD167J-562	5.6K 1/6W CARBON RES	
	R764	QRD161J-183	18K 1/6W CARBON RES	
	R781	QRD167J-434	430K 1/6W CARBON RES	
	R782	QRD161J-274	270K 1/6W CARBON RES	
	R783	QRD161J-203	20K 1/6W CARBON RES	
	R784	QRD161J-224	220K 1/6W CARBON RES	
	R785	QRD167J-562	5.6K 1/6W CARBON RES	
	R786	QRD161J-392	3.9K 1/6W CARBON RES	
	R788	QRD161J-103	10K 1/6W CARBON RES	
	R789	QRD167J-102	1K 1/6W CARBON RES	
	R790	QRD167J-471	470 1/6W CARBON RES	
	R791	QRD161J-683	68K 1/6W CARBON RES	
	R792	QRD161J-183	18K 1/6W CARBON RES	
	R793	QRD161J-183	18K 1/6W CARBON RES	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R794	QRD161J-221	220 1/6W CARBON RES	
	R796	QRD161J-472	4.7K 1/6W CARBON RES	
	R797	QRD161J-472	4.7K 1/6W CARBON RES	
	R798	QRD161J-472	4.7K 1/6W CARBON RES	
⚠	R799	QRZ0077-100	10 1/4W FUSIBLE RE	EF
⚠	R799	QRZ0077-100	10 1/4W FUSIBLE RE	EN
⚠	R799	QRZ0077-100	10 1/4W FUSIBLE RE	G
⚠	R799	QRZ0077-100	10 1/4W FUSIBLE RE	GI
⚠	R800	QRZ0077-100	10 1/4W FUSIBLE RE	EF
⚠	R800	QRZ0077-100	10 1/4W FUSIBLE RE	EN
⚠	R800	QRZ0077-100	10 1/4W FUSIBLE RE	G
⚠	R800	QRZ0077-100	10 1/4W FUSIBLE RE	GI
	R801	QRD161J-474	470K 1/6W CARBON RES	
	R802	QRD161J-474	470K 1/6W CARBON RES	
	R803	QRD161J-823	82K 1/6W CARBON RES	
	R804	QRD161J-221	220 1/6W CARBON RES	
	R805	QRD161J-683	68K 1/6W CARBON RES	
	R806	QRD161J-123	12K 1/6W CARBON RES	
	R807	QRD167J-152	1.5K 1/6W CARBON RES	
	R808	QRD161J-2R2	2.2 1/6W CARBON RES	
	R810	QRD161J-684	680K 1/6W CARBON RES	
	R811	QRD161J-513	51K 1/6W CARBON RES	
	R812	QRD161J-513	51K 1/6W CARBON RES	
	R813	QRD161J-683	68K 1/6W CARBON RES	
	R814	QRD161J-683	68K 1/6W CARBON RES	
	R815	QRD161J-221	220 1/6W CARBON RES	
	R821	QRD161J-563	56K 1/6W CARBON RES	
	R822	QRD161J-563	56K 1/6W CARBON RES	
	R823	QRD161J-394	390K 1/6W CARBON RES	
	R824	QRD161J-681	680 1/6W CARBON RES	
	R825	QVPA601-202A	2K TRIMMER RE	
	R826	QRD161J-122	1.2K 1/6W CARBON RES	
	R827	QRD167J-334	330K 1/6W CARBON RES	
	R828	QRD161J-512	5.1K 1/6W CARBON RES	
	R829	QVPA601-154A	150K TRIMMER RE	
	R830	QRD167J-223	22K 1/6W CARBON RES	
	R831	QRD167J-682	6.8K 1/6W CARBON RES	
	R832	QRD161J-103	10K 1/6W CARBON RES	
	R833	QRD167J-562	5.6K 1/6W CARBON RES	
	R834	QRD167J-562	5.6K 1/6W CARBON RES	
	R835	QRD167J-562	5.6K 1/6W CARBON RES	
	R836	QRD167J-562	5.6K 1/6W CARBON RES	
	R837	QRD161J-183	18K 1/6W CARBON RES	
	R839	QRD161J-103	10K 1/6W CARBON RES	
	R840	QRD167J-154	150K 1/6W CARBON RES	
	R841	QRD161J-103	10K 1/6W CARBON RES	
	R842	QRD161J-303Y	30K 1/6W CARBON RES	
	R843	QRD167J-434	430K 1/6W CARBON RES	
	R844	QRD167J-434	430K 1/6W CARBON RES	
	R845	QRD161J-103	10K 1/6W CARBON RES	
	R846	QRD161J-184	180K 1/6W CARBON RES	
	R847	QRD161J-104	100K 1/6W CARBON RES	
	R848	QRD161J-104	100K 1/6W CARBON RES	
	R849	QRD161J-681	680 1/6W CARBON RES	
	R850	QRD161J-183	18K 1/6W CARBON RES	
	R852	QRD167J-102	1K 1/6W CARBON RES	
	R853	QRD167J-562	5.6K 1/6W CARBON RES	
	R857	QRD161J-221	220 1/6W CARBON RES	
	R858	QRD167J-562	5.6K 1/6W CARBON RES	
	R859	QRD161J-183	18K 1/6W CARBON RES	
	R861	QRD161J-182	1.8K 1/6W CARBON RES	
	R862	QRD161J-221	220 1/6W CARBON RES	
	R863	QRD161J-184	180K 1/6W CARBON RES	
	R864	QRD161J-393	39K 1/6W CARBON RES	
	R865	QVPA601-104A	100K TRIMMER RE	
	R866	QRD161J-224	220K 1/6W CARBON RES	
	R867	QRD161J-182	1.8K 1/6W CARBON RES	
	R868	QRD161J-122	1.2K 1/6W CARBON RES	
	R869	QRD167J-822	8.2K 1/6W CARBON RES	
	R870	QRD167J-822	8.2K 1/6W CARBON RES	
	R871	QRD161J-821	820 1/6W CARBON RES	
	R872	QRD161J-182	1.8K 1/6W CARBON RES	
	R873	QRD161J-101	100 1/6W CARBON RES	
	R874	QRD161J-561	560 1/6W CARBON RES	EF
	R874	QRD161J-561	560 1/6W CARBON RES	EN
	R874	QRD161J-561	560 1/6W CARBON RES	G
	R874	QRD161J-561	560 1/6W CARBON RES	GI
	R875	QRD167J-682	6.8K 1/6W CARBON RES	
	R876	QRD167J-682	6.8K 1/6W CARBON RES	
	R877	QRD167J-102	1K 1/6W CARBON RES	
	R879	QRD167J-102	1K 1/6W CARBON RES	
	R880	QRD167J-102	1K 1/6W CARBON RES	
	R881	QRD161J-103	10K 1/6W CARBON RES	
	R882	QRD167J-272	2.7K 1/6W CARBON RES	
	R883	QRD167J-102	1K 1/6W CARBON RES	
	R884	QRD161J-271	270 1/6W CARBON RES	
	R885	QRD161J-103	10K 1/6W CARBON RES	
	R886	QRD167J-562	5.6K 1/6W CARBON RES	
	R887	QRD161J-472	4.7K 1/6W CARBON RES	
	R888	QRD167J-822	8.2K 1/6W CARBON RES	
	R889	QRD161J-103	10K 1/6W CARBON RES	
	R891	QRD161J-561	560 1/6W CARBON RES	
	R892	QRD161J-222	2.2K 1/6W CARBON RES	
	R893	QRD161J-561	560 1/6W CARBON RES	
	R894	QRD161J-561	560 1/6W CARBON RES	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R895	QRD161J-472	4.7K 1/6W CARBON RES	
	R896	QRD167J-560	56 1/6W CARBON RES	
	R897	QRD161J-181	180 1/6W CARBON RES	
	R898	QRD161J-181	180 1/6W CARBON RES	
	R899	QRD161J-273	27K 1/6W CARBON RES	
	R900	QRD161J-273	27K 1/6W CARBON RES	
	R901	QRD161J-273	27K 1/6W CARBON RES	
	R902	QRD161J-273	27K 1/6W CARBON RES	
	R903	QRD167J-562	5.6K 1/6W CARBON RES	
	R904	QRD167J-562	5.6K 1/6W CARBON RES	
	R905	QRD167J-822	8.2K 1/6W CARBON RES	
	R906	QRD167J-822	8.2K 1/6W CARBON RES	
	R907	QRD161J-273	27K 1/6W CARBON RES	
	R908	QRD161J-273	27K 1/6W CARBON RES	
	R909	QRD161J-561	560 1/6W CARBON RES	
	R910	QRD161J-561	560 1/6W CARBON RES	
	R911	QRD161J-181	180 1/6W CARBON RES	
	R912	QRD161J-181	180 1/6W CARBON RES	
	R913	QRD167J-153	15K 1/6W CARBON RES	
	R914	QRD167J-153	15K 1/6W CARBON RES	
	R941	QRD167J-152	1.5K 1/6W CARBON RES	
	R942	QRD161J-512	5.1K 1/6W CARBON RES	
	R943	QRD161J-201	200 1/6W CARBON RES	
	R945	QRD161J-104	100K 1/6W CARBON RES	
	R946	QRD161J-104	100K 1/6W CARBON RES	
	R947	QRD161J-392	3.9K 1/6W CARBON RES	
	R948	QRD161J-392	3.9K 1/6W CARBON RES	
	R949	QRD161J-684	680K 1/6W CARBON RES	
	R950	QRD167J-154	150K 1/6W CARBON RES	
	R951	QRD167J-200	20 1/6W CARBON RES	EF
	R951	QRD167J-200	20 1/6W CARBON RES	EN
	R951	QRD167J-200	20 1/6W CARBON RES	G
	R951	QRD167J-200	20 1/6W CARBON RES	GI
	R953	QRZ0077-4R7	4.7 1/4W FUSIBLE RESI	EF
	R953	QRZ0077-4R7	4.7 1/4W FUSIBLE RESI	EN
	R953	QRZ0077-4R7	4.7 1/4W FUSIBLE RESI	G
	R953	QRZ0077-4R7	4.7 1/4W FUSIBLE RESI	GI
	R954	QRD12CJ-120S	12 1/2W R.NETWORK	EF
	R954	QRD12CJ-120S	12 1/2W R.NETWORK	EN
	R954	QRD12CJ-120S	12 1/2W R.NETWORK	G
	R954	QRD12CJ-120S	12 1/2W R.NETWORK	GI
	R967	QRD161J-103	10K 1/6W CARBON RES	EF
	R967	QRD161J-103	10K 1/6W CARBON RES	EN
	R967	QRD161J-103	10K 1/6W CARBON RES	G
	R967	QRD161J-103	10K 1/6W CARBON RES	GI
	R971	QRD161J-220	22 1/6W CARBON RES	
	R972	QRD161J-220	22 1/6W CARBON RES	
	R973	QRD167J-102	1K 1/6W CARBON RES	
	R974	QRD161J-105	1M 1/6W CARBON RES	
	R975	QRD161J-331	330 1/6W CARBON RES	
	R976	QRD161J-183	18K 1/6W CARBON RES	
	R977	QRD167J-102	1K 1/6W CARBON RES	
	R978	QRD161J-103	10K 1/6W CARBON RES	
	R979	QRD161J-103	10K 1/6W CARBON RES	
	R980	QRD161J-104	100K 1/6W CARBON RES	
	R981	QRD161J-222	2.2K 1/6W CARBON RES	
	R982	QRD161J-910Y	91 1/6W CARBON RES	
	R991	QRD167J-471	470 1/6W CARBON RES	
	R992	QRD161J-473	47K 1/6W CARBON RES	
	R994	QRD161J-103	10K 1/6W CARBON RES	
	R995	QRD161J-472	4.7K 1/6W CARBON RES	
	R996	QRD161J-105	1M 1/6W CARBON RES	
	R997	QRD161J-473	47K 1/6W CARBON RES	
	R999	QRD161J-472	4.7K 1/6W CARBON RES	
	RA991	QRB045J-473M	47K 1/8W NETWORK RE	

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		E3400-420	FELT SPACER	
		E308198-001	FL HOLDER	
	J701	EMV7141-013M	CONNECT TER **13PIN**	
	K801	ENZ8101-007	INDUCTOR	
	P801	EMV7144-015	F.P.C.PLUG **15PIN**	
	P802	EMV5109-006A	CONNECT TER **6PIN**	
	P803	EMV5109-005A	MALE CONNEC **5PIN**	
	P901	EMV7123-025	MALE CONNEC **25PIN**	
	P981	GP1F32T	OPTICAL JAC	EF
	P981	GP1F32T	OPTICAL JAC	EN
	P981	GP1F32T	OPTICAL JAC	G
	P981	GP1F32T	OPTICAL JAC	GI
	P991	EMV7123-025R	CONNECT TER **25PIN**	
	S971	ESP0001-018	PUSH SWITCH ①	
	S972	ESP0001-018	PUSH SWITCH ③	
	S973	ESP0001-018	PUSH SWITCH ⑦	
	S974	ESP0001-018	PUSH SWITCH ⑨	
	S975	ESP0001-018	PUSH SWITCH ④	
	S976	ESP0001-018	PUSH SWITCH ②	
	S977	ESP0001-018	PUSH SWITCH ⑤	
	S978	ESP0001-018	PUSH SWITCH ⑩	
	S979	ESP0001-018	PUSH SWITCH ⑥	
	S980	ESP0001-018	PUSH SWITCH ⑧	
	S981	ESP0001-018	PUSH SWITCH **PROGRAM**	
	S982	ESP0001-018	PUSH SWITCH ⏮	
	S983	ESP0001-018	PUSH SWITCH **EDIT MODE**	
	S984	ESP0001-018	PUSH SWITCH ⏭	
	S985	ESP0001-018	PUSH SWITCH **SIDE A/B**	
	S986	ESP0001-018	PUSH SWITCH **TIME**	
	S987	ESP0001-018	PUSH SWITCH **FADE MODE**	
	S988	ESP0001-018	PUSH SWITCH **REPEAT ALL 1**	
	S989	ESP0001-018	PUSH SWITCH **RANDOM**	
	S990	ESP0001-018	PUSH SWITCH **DISPLAY**	
	S991	ESP0001-018	PUSH SWITCH **+10**	
	S992	ESP0001-018	PUSH SWITCH **PLAY/PAUSE ▶/⏸**	
	S993	ESP0001-018	PUSH SWITCH **OPEN CLOSE ▲**	
	S994	ESP0001-018	PUSH SWITCH **CANCEL**	
	S995	ESP0001-018	PUSH SWITCH **STOP CLEAR ■**	
	X841	ECX0169-344EA	CRYSTAL	
	CF991	ECX0004-194KM	CERAMIC RES	
⚠	CP701	ICP-N5	PROTECTOR	
	EP701	E70859-001	EARTH PLATE	
	EP702	E70859-001	EARTH PLATE	
	EP703	E70859-001	EARTH PLATE	
	EP704	E70859-001	EARTH PLATE	
	FL991	ELU0001-140	FLUORESCENT	
	L201	EQL4004-330Y	INDUCTOR	

⚠ : SAFETY PARTS

—— MEMO ——

TD-G90RBK

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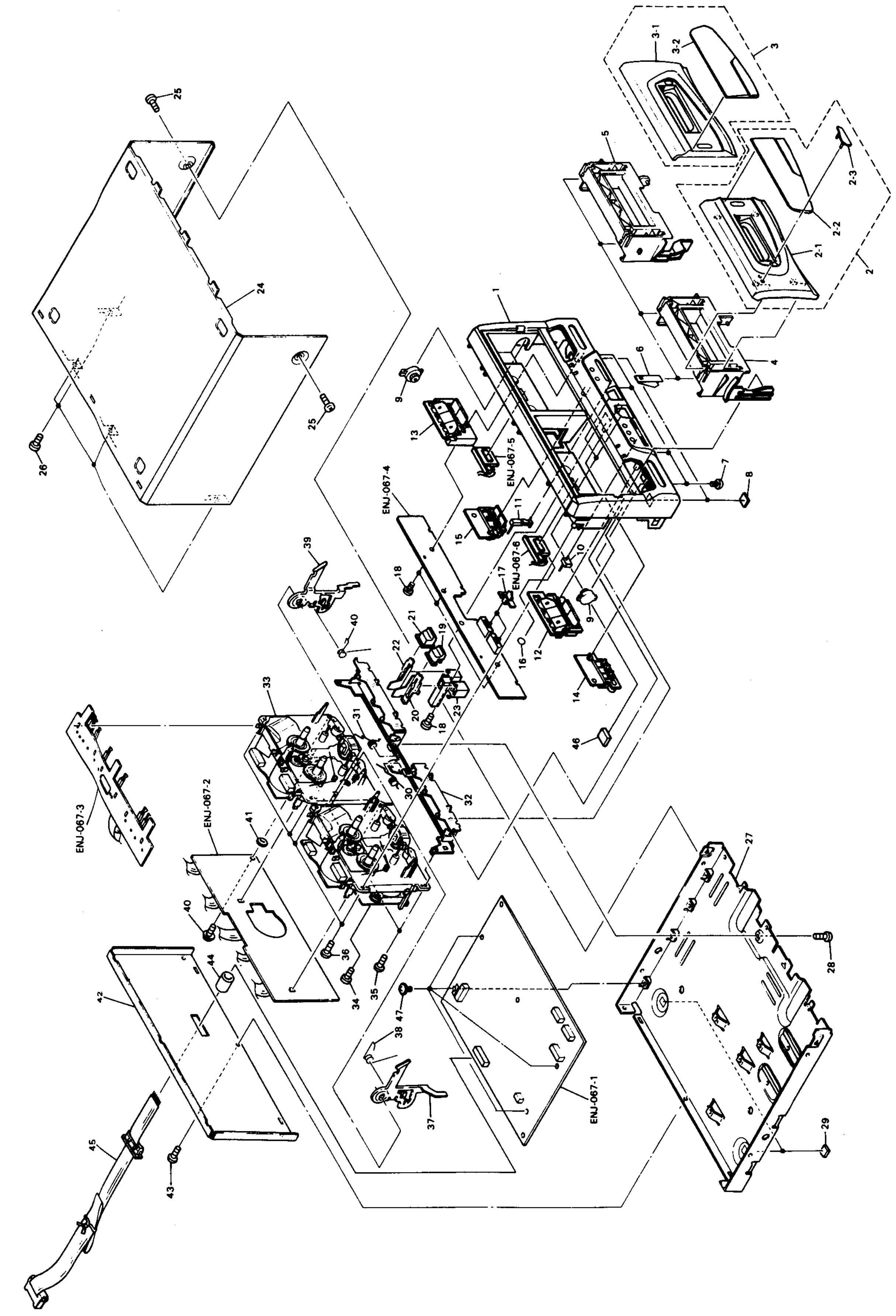
  ■ Grease Point 9-5
Printed Circuit Board Ass'y and Parts List 9-8
  ■ ENJ-067 E Cassette Deck PC Board Ass'y 9-8

General Exploded View and Parts List

Symbol No. M 6 M M



Symbol No. M 6 M M

■ Parts List

⚠	Item	Part Number	Part Name	Q'ty	Description	Area
	1	E102632-010	FRONT PANEL	1		
	2	E102637-004SA	CASS.LID ASSY	1		
	2-1	E102637-004	CASS.LID (A)	1		
	2-2	E308209-001	CASSETTE LENS	1		
	2-3	E406971-221	JVC MARK	1		
	3	E102639-007SA	CASS.LID ASSY	1		
	3-1	E102639-007	CASS LID(B)	1		
	3-2	E308211-001	CASSETTE LENS	1		
	4	E207642-001	CASSETTE HOLDER	1	(A)	
	5	E207643-001	CASSETTE HOLDER	1	(B)	
	6	E406713-001	CASSETE SPRING	4		
	7	SBST3006M	TAPPING SCREW	4		
	8	E406855-008	SPACER	2		
	9	E304434-003	DAMPER ASSY	2		
	10	E407241-001	INDICATOR LENS	1		
	11	E407242-001	INDICATOR LENS	1		
	12	E207648-001	PUSH BUTTON ASSY	1		
	13	E207651-001	PUSH BUTTON ASSY	1		
	14	E207654-001	PUSH BUTTON	1		
	15	E207655-002	PUSH BUTTON	1		
	16	E60912-003	SPEED NUT	4		
	17	E407239-001	SLIDE KNOB	2		
	18	SDSF2608Z	SCREW	4		
	19	E308205-001	EJECT BUTTON (A)	1		
	20	E407237-001	PUSH PLATE	1		
	21	E308207-001	EJECT BUTTON (B)	1		
	22	E407238-001	PUSH PLATE	1		
	23	E308204-002	EJECT GUIDE	1		
	24	E207591-002	METAL COVER	1		
	25	SDSG3008M	SCREW	2		
	26	E73273-003	SPECIAL SCREW	4		
	27	E102462-001	CHASSIS BASE	1		
	28	SBST3006Z	TAPPING SCREW	1		
	29	E406855-005	SPACER	2		
	30	E407324-001	HOLDER SPRING	1		
	31	E407325-001	HOLDER SPRING	1		
	32	E207641-002	HOLDER BRACKET	1		
	33	----------------	CASSETTE MECHANISM ASSY	1	SEE PAGE 9-5	
	34	E65923-001	TAPPING SCREW	1		
	35	SBST3008C	TAPPING SCREW	4		
	36	SBSF3010C	TAPPING SCREW	4		
	37	E308202-001	EJECT LEVER	1	(A)	
	38	E406669-001	EJECT SPRING	1	(A)	
	39	E308203-001	EJECT LEVER	1	(B)	
	40	E406670-001	EJECT SPRING	1	(B)	
	41	E73967-010	SPACER	1		
	42	E207639-012	REAR PANEL	1		
	43	SBSG3008CC	TAPPING SCREW	1		
	44	ENZ8104-001	NOISE FILTER	1		
	45	EWP907-013	PLUG CORD ASSY	1		
	46	EXO010005A03S14	SPACER	2		
	47	GBSG3008CC	TAPPING SCREW	5		
	-	E61029-011	NUMBER LABEL	1		

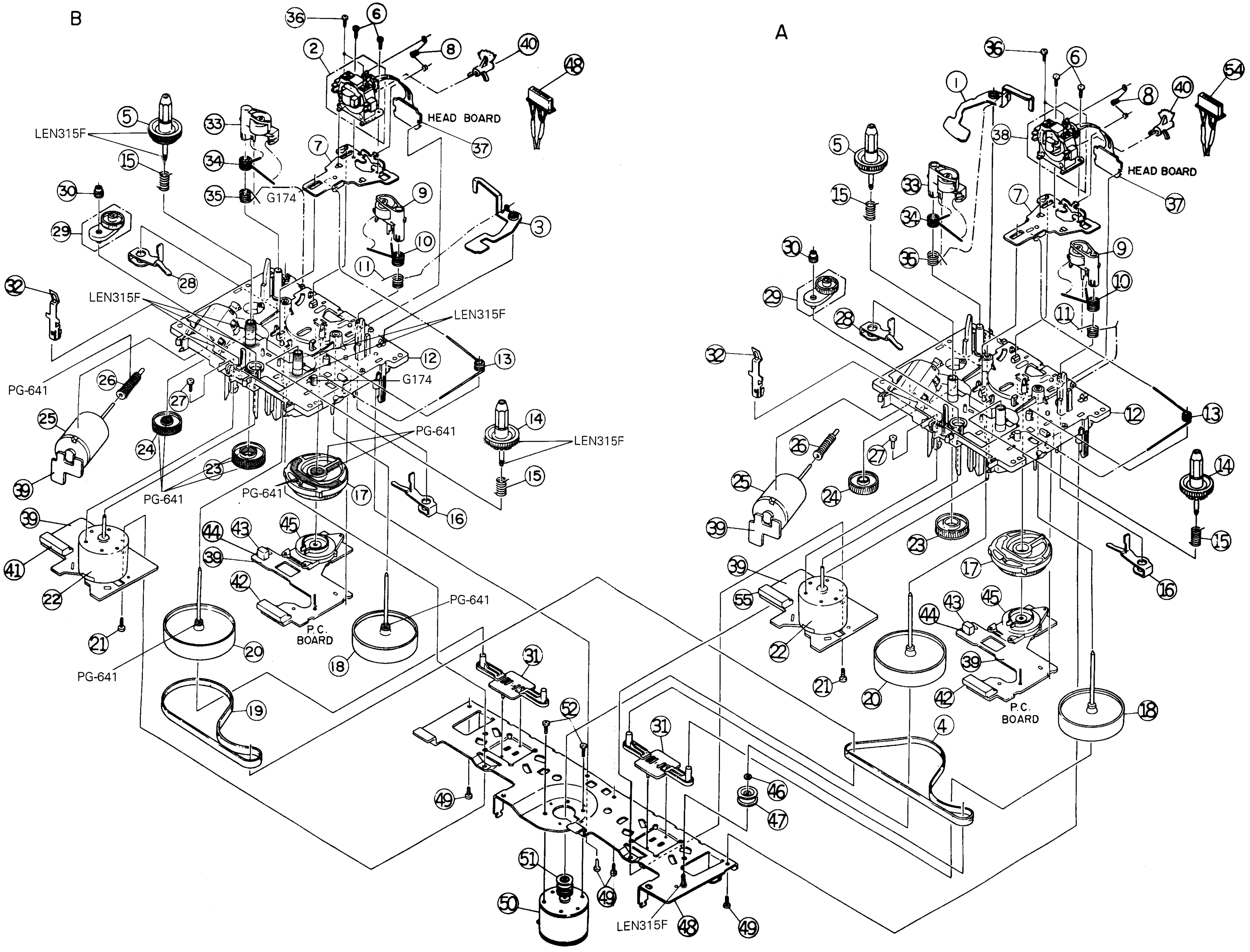
⚠ : Safety Parts

The Marks for Designated Areas

EF .... Continental Europe
EN .... Scandinavia
G ...... Germany
GI .... Italy
No mark indicates all area.

Cassette Mechanism Ass'y and Parts List

Symbol No. M 7 M M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P.C. BOARD
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LEN315F
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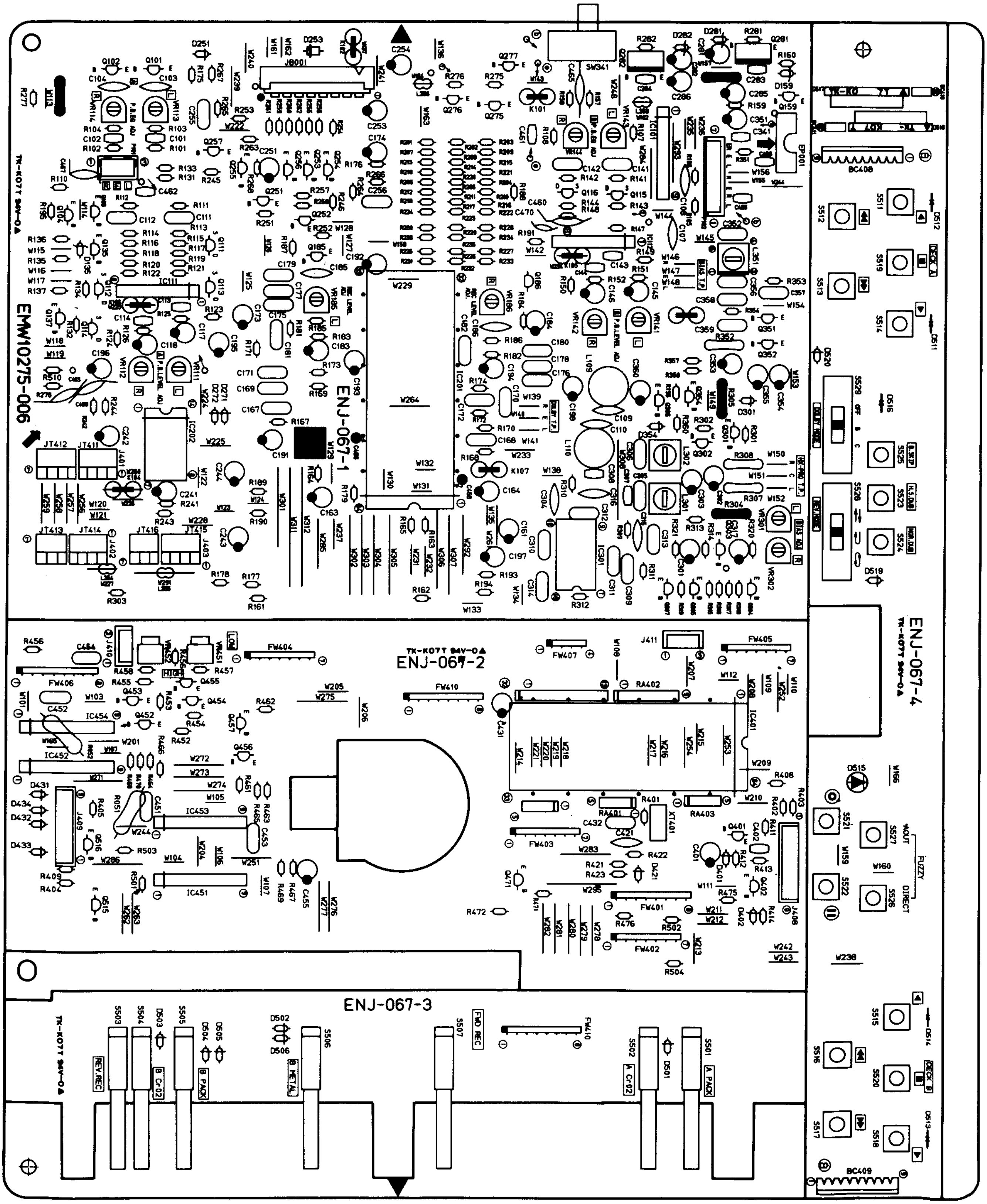
Symbol No. | M | 7 | M | M |

■ Parts List (Cassette Mechanism)

Item	Part Number	Part Name	Q'ty	Description	Areas
1	VKL6954-007	EJECT SAFETY LEVER	1	A MECHANISM	
2	VKS3551-00C	HEAD BLOCK ASSY	1	B MECHANISM	
3	VKL6943-005	EJECT SAFETY LEVER	1	B MECHANISM	
4	VKB3001-050	CAPSTAN BELT	1	A MECHANISM	
5	VKS5321-00D	REEL ASSY	2	RIGHT	
6	SDST2004Z	SCREW	4	FOR HEAD MOUNT ASSY	
7	VKL6942-00E	HEAD BASE ASSY	2		
8	VKW4994-001	HEAD SPRING	2		
9	VKP4221-00C	PINCH ROLLER ASSY	2	LEFT	
10	VKW4982-001	TORSION SPRING	2	LEFT	
11	VKW4933-005	TORSION SPRING	2	LEFT	
12	VKS1112-30E	CHASSIS BASE ASSY	2		
13	VKW4930-002	RETURN SPRING	2		
14	VKS3480-005	REEL ASSY	2	LEFT	
15	VKW4928-003	B.T SPRING	4	FOR REEL ASSY	
16	VKL6940-002	PINCH ROLLER LEVER	2	LEFT	
17	VKS2209-006	CONTROLLER CAM	2		
18	VKF3186-00C	FLYWHEEL ASSY	2	LEFT	
19	VKB3001-048	CAPSTAN BELT	1	B MECHANISM	
20	VKF3184-00C	FLYWHEEL ASSY	2	RIGHT	
21	SDSF2608Z	SCREW	2	PC BOARD - FM BRACKET	
22	MMN-6F4RA38	DC MOTOR	2	REEL	
23	VKS5331-002	GEAR (6)	2		
24	VKS5330-004	GEAR (5)	2		
25	MXN-13FB12F	DC MOTOR	2	CAM	
26	VKS5329-002	GEAR (4)	2		
27	SDSP2605Z	SCREW	2	CHASSIS BASE - D.C. MOTOR	
28	VKL6939-002	PINCH ROLLER LEVER	2	RIGHT	
29	VKS5325-00F	FR ARM ASSY	2		
30	VKS5328-002	REEL MOTOR GEAR	2		
31	VKS5327-003	THRUST PALTE	2		
32	VKY4628-002	PACK SPRING	2		
33	VKP4219-00C	PINCH ROLLER ASSY	2	RIGHT	
34	VKW4981-001	TORSION SPRING	2	RIGHT	
35	VKW4932-005	TORSION SPRING	2	RIGHT	
36	VKZ4629-003	SCREW	4		
37	VMW4816-001	PRINTED BOARD	2		
38	VKS3550-00C	HEAD MOUNT ASSY	1	A MECHANISM	
39	VMW2345-002	PRINTED BOARD	2		
40	VKS3485-002	HEAD BLOCK GEAR	2		
41	VMC0249-R08	CONNECTOR	1	B MECHANISM	
42	VMC0249-R07	CONNECTOR	2		
43	DN6851A	HALL IC	2		
44	VKS3487-002	IC HALL	2		
45	VKS3587-00A	CAM SWITCH ASSY	2		
46	WDL163525-4	WASHER	1		
47	VKR4631-002	IDLER PULLEY	1		
48	VKM3419-00E	FM BRACKET	1		
49	SDSF2605Z	SCREW	4	CHASSIS BASE - BRACKET	
50	MMI-6H2LWSK	MOTOR	1	CAPSTAN	
51	VKR4632-003	MOTOR PULLEY	1		
52	SPSP2603Z	SCREW	2		
53	VDM107P-040	HEAD WIRE	1	B MECHANISM	
54	VDM103P-040	HEAD WIRE	1	A MECHANISM	
55	VMC0249-R04	CONNECTOR	1	A MECHANISM	

Printed Circuit Board Ass'y and Parts List

■ ENJ-067 [E] Cassette Deck PC Board Ass'y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FWD REC
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A PACK
DECK A
DECK B
FUZZY
DIRECT
BC408
BC409

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q101	DTC144ES	DIGITAL TRA ROHM	
	Q102	DTC144ES	DIGITAL TRA ROHM	
	Q103	DTC144ES	DIGITAL TRA ROHM	
	Q104	DTC144ES	DIGITAL TRA ROHM	
	Q111	2SK301(P,Q)	F.E.T. MATSUSHITA	
	Q112	2SK301(P,Q)	F.E.T. MATSUSHITA	
	Q113	2SK301(P,Q)	F.E.T. MATSUSHITA	
	Q114	2SK301(P,Q)	F.E.T. MATSUSHITA	
	Q115	2SK301(P,Q)	F.E.T. MATSUSHITA	
	Q116	2SK301(P,Q)	F.E.T. MATSUSHITA	
	Q135	DTC144ES	DIGITAL TRA ROHM	
	Q137	DTC144ES	DIGITAL TRA ROHM	
	Q159	DTC144ES	DIGITAL TRA ROHM	
	Q185	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q186	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q251	2SC1740S(R,S)	SI.TRANSIST ROHM	
	Q252	2SC1740S(R,S)	SI.TRANSIST ROHM	
	Q253	2SC1740S(R,S)	SI.TRANSIST ROHM	
	Q254	2SC1740S(R,S)	SI.TRANSIST ROHM	
	Q255	2SC1740S(R,S)	SI.TRANSIST ROHM	
	Q256	2SC1740S(R,S)	SI.TRANSIST ROHM	
	Q257	2SC1740S(R,S)	SI.TRANSIST ROHM	
	Q275	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q276	2SD2144S(VW)	SI.TRANSIST ROHM	
	Q277	DTA144ES	DIGITAL TRA ROHM	
	Q281	2SD2037(E,F)	SI.TRANSIST ROHM	
	Q282	2SB1357(E,F)	SI.TRANSIST ROHM	
	Q301	2SA934(Q,R)	SI.TRANSIST ROHM	
	Q302	DTC114WS	DIGITAL TRA S001	
	Q303	DTC144TS	DIGITAL TRA ROHM	
	Q304	DTC144TS	DIGITAL TRA ROHM	
	Q305	2SC1740S(R,S)	SI.TRANSIST ROHM	
	Q306	DTC144ES	DIGITAL TRA ROHM	
	Q307	DTC114WS	DIGITAL TRA S001	
	Q351	2SC3311A(Q,R)	SI.TRANSIST MATSUSHITA	
	Q352	2SC3311A(Q,R)	SI.TRANSIST MATSUSHITA	
	Q354	2SC1740S(R,S)	SI.TRANSIST ROHM	
	Q401	DTC114ES	DIGITAL TRA ROHM	
	Q402	DTA114TS	DIGITAL TRA ROHM	
	Q452	DTC114YS	DIGITAL TRA ROHM	
	Q453	DTC114YS	DIGITAL TRA ROHM	
	Q454	2SA933S(RS)	SI.TRANSIST	
	Q455	2SA933S(RS)	SI.TRANSIST	
	Q456	DTC144ES	DIGITAL TRA ROHM	
	Q457	DTC144ES	DIGITAL TRA ROHM	
	Q471	2SC1740S(R,S)	SI.TRANSIST ROHM	
	Q515	DTC114YS	DIGITAL TRA ROHM	
	Q516	DTC114YS	DIGITAL TRA ROHM	

⚠ : SAFETY PARTS

I.C.s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC101	UPC1330HA	I.C(MONO-AN NEC	
	IC111	VC4580LD	I.C(MONO-AN DAINICHI	
	IC112	VC4580LD	I.C(MONO-AN DAINICHI	
	IC201	HA12155NT	I.C(MONO-AN HITACHI	
	IC202	M62302P	I.C(MONO-AN MITSUBISHI	
	IC301	UPC1297CA	I.C(MONO-AN NEC	
	IC401	HD614081SD46	I.C(MICRO-C HITACHI	
	IC451	TA8409S	I.C(MONO-AN TOSHIBA	
	IC452	TA8409S	I.C(MONO-AN TOSHIBA	
	IC453	TA8409S	I.C(MONO-AN TOSHIBA	
	IC454	TA8409S	I.C(MONO-AN TOSHIBA	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D135	MTZ2.7JB	ZENER DIODE ROHM	
	D159	MTZ2.7JB	ZENER DIODE ROHM	
	D251	1SS119	SI.DIODE	
	D253	1SR35-200A	SI.DIODE ROHM	
	D271	1SS119	SI.DIODE	
	D272	1SS119	SI.DIODE	
	D281	MTZ7.5JC	ZENER DIODE ROHM	
	D282	MTZ7.5JC	ZENER DIODE ROHM	
	D301	1SS119	SI.DIODE	
	D354	1SS119	SI.DIODE	
	D401	1SS119	SI.DIODE	
	D402	MTZ3.9JB	ZENER DIODE ROHM	
	D421	1SS119	SI.DIODE	
	D431	1SS119	SI.DIODE	
	D432	1SS119	SI.DIODE	
	D433	1SS119	SI.DIODE	
	D434	1SS119	SI.DIODE	
	D501	1SS119	SI.DIODE	
	D502	1SS119	SI.DIODE	
	D503	1SS119	SI.DIODE	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D504	1SS119	SI.DIODE	
	D505	1SS119	SI.DIODE	
	D506	1SS119	SI.DIODE	
	D511	SLR-342MCA47	L.E.D. ROHM	
	D512	SLR-342MCA47	L.E.D. ROHM	
	D513	SLR-342MCA47	L.E.D. ROHM	
	D514	SLR-342MCA47	L.E.D. ROHM	
	D515	SLH-34VC50F124	L.E.D. ROHM	
	D516	SLR-342VC3F	L.E.D. ROHM	
	D517	LD-702MG	L.E.D. ROHM	
	D518	LD-702MG	L.E.D. ROHM	
	D519	1SS119	SI.DIODE	
	D520	1SS119	SI.DIODE	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C101	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C102	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C103	QCY31HK-152Z	1500PF 50V CER.CAPACI	
	C104	QCY31HK-152Z	1500PF 50V CER.CAPACI	
	C107	QCY31HK-182Z	1800PF 50V CER.CAPACI	
	C108	QCY31HK-182Z	1800PF 50V CER.CAPACI	
	C109	QCS21HJ-101A	100PF 50V CER.CAPACI	
	C110	QCS21HJ-101A	100PF 50V CER.CAPACI	
	C111	QFN81HJ-822	8200PF 50V METAL.MYLA	
	C112	QFN81HJ-822	8200PF 50V METAL.MYLA	
	C113	QCBB1HK-471Y	470PF 50V CER.CAPACI	
	C114	QCBB1HK-471Y	470PF 50V CER.CAPACI	
	C117	QETB1AM-107	100MF 10V AL E.CAPAC	
	C118	QETB1AM-107	100MF 10V AL E.CAPAC	
	C141	QFN81HJ-822	8200PF 50V METAL.MYLA	
	C142	QFN81HJ-822	8200PF 50V METAL.MYLA	
	C143	QCBB1HK-471Y	470PF 50V CER.CAPACI	
	C144	QCBB1HK-471Y	470PF 50V CER.CAPACI	
	C145	QETB1AM-107	100MF 10V AL E.CAPAC	
	C146	QETB1AM-107	100MF 10V AL E.CAPAC	
	C151	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C152	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C161	QETB1AM-107	100MF 10V AL E.CAPAC	
	C163	QETB1HM-105	1MF 50V AL E.CAPAC	
	C164	QETB1HM-105	1MF 50V AL E.CAPAC	
	C167	QFN81HJ-272	2700PF 50V METAL.MYLA	
	C168	QFN81HJ-272	2700PF 50V METAL.MYLA	
	C169	QFN81HJ-222	2200PF 50V METAL.MYLA	
	C170	QFN81HJ-222	2200PF 50V METAL.MYLA	
	C171	QFN81HJ-222	2200PF 50V METAL.MYLA	
	C172	QFN81HJ-222	2200PF 50V METAL.MYLA	
	C173	QETB1EM-106	10MF 25V AL E.CAPAC	
	C174	QETB1EM-106	10MF 25V AL E.CAPAC	
	C175	QFN81HJ-222	2200PF 50V METAL.MYLA	
	C176	QFN81HJ-222	2200PF 50V METAL.MYLA	
	C177	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C178	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C179	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C180	QFVB1HJ-104N	0.1MF 50V T.FILM	
	C181	QFVB1HJ-103N	0.01MF 50V T.FILM	
	C182	QFVB1HJ-103N	0.01MF 50V T.FILM	
	C183	QETB1HM-105	1MF 50V AL E.CAPAC	
	C184	QETB1HM-105	1MF 50V AL E.CAPAC	
	C185	QCF21HP-473A	0.047MF 50V CER.CAPACI	
	C186	QCF21HP-473A	0.047MF 50V CER.CAPACI	
	C191	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C192	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C193	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C194	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C195	QETB1HM-105	1MF 50V AL E.CAPAC	
	C196	QETB1HM-105	1MF 50V AL E.CAPAC	
	C197	QETB1HM-105	1MF 50V AL E.CAPAC	
	C198	QETB1HM-105	1MF 50V AL E.CAPAC	
	C241	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C242	QETB1HM-475E	4.7MF 50V E.CAPACITO	
	C243	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C244	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C251	QETB1EM-106	10MF 25V AL E.CAPAC	
	C253	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C254	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C255	QFVB1HJ-473N	0.047MF 50V T.FILM	
	C256	QFVB1HJ-473N	0.047MF 50V T.FILM	
	C281	QETB1HM-106	10MF 50V E.CAPACITO	
	C282	QETB1HM-106	10MF 50V E.CAPACITO	
	C283	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C284	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C285	QETB1AM-476	47MF 10V E.CAPACITO	
	C286	QETB1AM-476	47MF 10V E.CAPACITO	
	C301	QETB1CM-476	47MF 16V AL E.CAPAC	
	C302	QETB1EM-106	10MF 25V AL E.CAPAC	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C303	QETB1EM-106	10MF 25V AL E.CAPAC	
	C304	QCS21HJ-100	10PF 50V CER.CAPACI	
	C305	QFP81HG-821	820PF 50V POLYPROPY.	
	C306	QFP81HG-821	820PF 50V POLYPROPY.	
	C307	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C308	QCBB1HK-101Y	100PF 50V CER.CAPACI	
	C309	QFVB1HJ-333N	0.033MF 50V METAL.MYLA	
	C310	QFVB1HJ-333N	0.033MF 50V METAL.MYLA	
	C311	QFVB1HJ-223N	0.022MF 50V T.FILM	
	C312	QFVB1HJ-223N	0.022MF 50V T.FILM	
	C313	QFVB1HJ-103N	0.01MF 50V T.FILM	
	C314	QFVB1HJ-103N	0.01MF 50V T.FILM	
	C315	QCF31HP-102Z	1000PF 50V CER.CAPACI	
	C316	QCF31HP-102Z	1000PF 50V CER.CAPACI	
	C317	QETB1EM-106	10MF 25V AL E.CAPAC	
	C341	QCBB1HK-471Y	470PF 50V CER.CAPACI	
	C351	QETB1CM-226	22MF 16V E.CAPACITO	
	C352	QFP31HG-562	5600PF 50V POLYPROPY.	
	C353	QETB1EM-106	10MF 25V AL E.CAPAC	
	C354	QETB1EM-106	10MF 25V AL E.CAPAC	
	C355	QETB1HM-105	1MF 50V AL E.CAPAC	
	C356	QFVB1HJ-153N	0.015MF 50V T.FILM	
	C357	QFN81HJ-222	2200PF 50V METAL.MYLA	
	C358	QFN81HJ-222	2200PF 50V METAL.MYLA	
	C359	QFN81HJ-682	6800PF 50V METAL.MYLA	
	C360	QETB1HM-225	2.2MF 50V E.CAPACITO	
	C401	QETB1CM-226	22MF 16V E.CAPACITO	
	C402	QCVB1CM-103Y	0.01MF 16V CER.CAPACI	
	C421	QCF21HP-473A	0.047MF 50V CER.CAPACI	
	C431	QETB1AM-476	47MF 10V E.CAPACITO	
	C432	QCZ0205-155	1.5MF 25V C.CAPACITO	
	C451	QFV81HJ-104	0.1MF 50V THIN FILM	
	C452	QFV81HJ-104	0.1MF 50V THIN FILM	
	C453	QFV81HJ-104	0.1MF 50V THIN FILM	
	C454	QFV81HJ-104	0.1MF 50V THIN FILM	
	C455	QETB1CM-107	100MF 16V AL E.CAPAC	
	C461	QCBB1HK-221Y	220PF 50V CER.CAPACI	
	C462	QCBB1HK-331Y	330PF 50V CER.CAPACI	
	C463	QCS21HJ-221	220PF 50V CER.CAPACI	
	C464	QCS21HJ-221	220PF 50V CER.CAPACI	
	C465	QCBB1HK-221Y	220PF 50V CER.CAPACI	
	C466	QCBB1HK-221Y	220PF 50V CER.CAPACI	
	C467	QCS21HJ-331	330PF 50V CER.CAPACI	
	C468	QCY21HK-102	1000PF 50V CER.CAPACI	
	C469	QCS21HJ-221	220PF 50V CER.CAPACI	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R101	QRD161J-224	220K 1/6W CARBON RES	
	R102	QRD161J-224	220K 1/6W CARBON RES	
	R103	QRD161J-512	5.1K 1/6W CARBON RES	
	R104	QRD161J-512	5.1K 1/6W CARBON RES	
	R105	QRD161J-100	10 1/6W CARBON RES	
	R106	QRD161J-100	10 1/6W CARBON RES	
	R107	QRD161J-512	5.1K 1/6W CARBON RES	
	R108	QRD161J-512	5.1K 1/6W CARBON RES	
	R110	QRD167J-223	22K 1/6W CARBON RES	
	R111	QRD167J-334	330K 1/6W CARBON RES	
	R112	QRD167J-334	330K 1/6W CARBON RES	
	R113	QRD161J-432	4.3K 1/6W CARBON RES	
	R114	QRD161J-432	4.3K 1/6W CARBON RES	
	R115	QRD167J-272	2.7K 1/6W CARBON RES	
	R116	QRD167J-272	2.7K 1/6W CARBON RES	
	R117	QRD167J-272	2.7K 1/6W CARBON RES	
	R118	QRD167J-272	2.7K 1/6W CARBON RES	
	R119	QRD161J-752	7.5K 1/6W CARBON RES	
	R120	QRD161J-752	7.5K 1/6W CARBON RES	
	R121	QRD167J-223	22K 1/6W CARBON RES	
	R122	QRD167J-223	22K 1/6W CARBON RES	
	R123	QRD167J-102	1K 1/6W CARBON RES	
	R124	QRD167J-102	1K 1/6W CARBON RES	
	R125	QRD161J-101	100 1/6W CARBON RES	
	R126	QRD161J-101	100 1/6W CARBON RES	
	R131	QRD161J-105	1M 1/6W CARBON RES	
	R132	QRD161J-105	1M 1/6W CARBON RES	
	R133	QRD161J-105	1M 1/6W CARBON RES	
	R134	QRD161J-105	1M 1/6W CARBON RES	
	R135	QRD161J-563	56K 1/6W CARBON RES	
	R136	QRD161J-472	4.7K 1/6W CARBON RES	
	R137	QRD161J-103	10K 1/6W CARBON RES	
	R141	QRD167J-334	330K 1/6W CARBON RES	
	R142	QRD167J-334	330K 1/6W CARBON RES	
	R143	QRD167J-682	6.8K 1/6W CARBON RES	
	R144	QRD167J-682	6.8K 1/6W CARBON RES	
	R147	QRD167J-822	8.2K 1/6W CARBON RES	
	R148	QRD167J-822	8.2K 1/6W CARBON RES	
	R149	QRD167J-102	1K 1/6W CARBON RES	
	R150	QRD167J-102	1K 1/6W CARBON RES	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R151	QRD161J-101	100 1/6W CARBON RES	
	R152	QRD161J-101	100 1/6W CARBON RES	
	R157	QRD161J-105	1M 1/6W CARBON RES	
	R158	QRD161J-105	1M 1/6W CARBON RES	
	R159	QRD161J-563	56K 1/6W CARBON RES	
	R160	QRD161J-472	4.7K 1/6W CARBON RES	
	R161	QRD167J-223	22K 1/6W CARBON RES	
	R162	QRD167J-223	22K 1/6W CARBON RES	
	R163	QRD167J-223	22K 1/6W CARBON RES	
	R164	QRD161J-183	18K 1/6W CARBON RES	
	R165	QRD161J-103	10K 1/6W CARBON RES	
	R167	QRD161J-242	2.4K 1/6W CARBON RES	
	R168	QRD161J-242	2.4K 1/6W CARBON RES	
	R169	QRD167J-562	5.6K 1/6W CARBON RES	
	R170	QRD167J-562	5.6K 1/6W CARBON RES	
	R171	QRD167J-223	22K 1/6W CARBON RES	
	R172	QRD167J-223	22K 1/6W CARBON RES	
	R173	QRD161J-561	560 1/6W CARBON RES	
	R174	QRD161J-561	560 1/6W CARBON RES	
	R175	QRD167J-562	5.6K 1/6W CARBON RES	
	R176	QRD167J-562	5.6K 1/6W CARBON RES	
	R177	QRD161J-103	10K 1/6W CARBON RES	
	R178	QRD161J-103	10K 1/6W CARBON RES	
	R179	QRD161J-103	10K 1/6W CARBON RES	
	R181	QRD161J-202	2K 1/6W CARBON RES	
	R182	QRD161J-202	2K 1/6W CARBON RES	
	R183	QRD161J-104	100K 1/6W CARBON RES	
	R184	QRD161J-104	100K 1/6W CARBON RES	
	R185	QRD161J-333	33K 1/6W CARBON RES	
	R186	QRD161J-333	33K 1/6W CARBON RES	
	R187	QRD161J-103	10K 1/6W CARBON RES	
	R188	QRD161J-103	10K 1/6W CARBON RES	
	R189	QRD161J-202	2K 1/6W CARBON RES	
	R190	QRD161J-202	2K 1/6W CARBON RES	
	R191	QRD161J-243	24K 1/6W CARBON RES	
	R193	QRD167J-153	15K 1/6W CARBON RES	
	R194	QRD167J-153	15K 1/6W CARBON RES	
	R195	QRD161J-103	10K 1/6W CARBON RES	
	R196	QRD161J-103	10K 1/6W CARBON RES	
	R201	QRD161J-104	100K 1/6W CARBON RES	
	R202	QRD161J-823	82K 1/6W CARBON RES	
	R203	QRD161J-203	20K 1/6W CARBON RES	
	R204	QRD161J-823	82K 1/6W CARBON RES	
	R205	QRD161J-823	82K 1/6W CARBON RES	
	R206	QRD161J-133Y	13K 1/6W CARBON RES	
	R207	QRD161J-104	100K 1/6W CARBON RES	
	R208	QRD161J-823	82K 1/6W CARBON RES	
	R209	QRD161J-163	16K 1/6W CARBON RES	
	R210	QRD161J-513	51K 1/6W CARBON RES	
	R211	QRD161J-563	56K 1/6W CARBON RES	
	R212	QRD161J-133Y	13K 1/6W CARBON RES	
	R213	QRD161J-104	100K 1/6W CARBON RES	
	R214	QRD161J-683	68K 1/6W CARBON RES	
	R215	QRD167J-153	15K 1/6W CARBON RES	
	R216	QRD167J-223	22K 1/6W CARBON RES	
	R217	QRD161J-363	36K 1/6W CARBON RES	
	R218	QRD161J-123	12K 1/6W CARBON RES	
	R219	QRD161J-104	100K 1/6W CARBON RES	
	R220	QRD161J-104	100K 1/6W CARBON RES	
	R221	QRD161J-473	47K 1/6W CARBON RES	
	R222	QRD161J-913	91K 1/6W CARBON RES	
	R223	QRD161J-683	68K 1/6W CARBON RES	
	R224	QRD161J-243	24K 1/6W CARBON RES	
	R225	QRD161J-104	100K 1/6W CARBON RES	
	R226	QRD161J-104	100K 1/6W CARBON RES	
	R227	QRD161J-273	27K 1/6W CARBON RES	
	R228	QRD161J-513	51K 1/6W CARBON RES	
	R229	QRD161J-513	51K 1/6W CARBON RES	
	R230	QRD167J-433	43K 1/6W CARBON	
	R231	QRD161J-104	100K 1/6W CARBON RES	
	R232	QRD161J-563	56K 1/6W CARBON RES	
	R233	QRD161J-513	51K 1/6W CARBON RES	
	R234	QRD167J-223	22K 1/6W CARBON RES	
	R235	QRD161J-333	33K 1/6W CARBON RES	
	R236	QRD161J-303Y	30K 1/6W CARBON RES	
	R241	QRD161J-473	47K 1/6W CARBON RES	
	R242	QRD161J-473	47K 1/6W CARBON RES	
	R243	QRD161J-103	10K 1/6W CARBON RES	
	R244	QRD161J-103	10K 1/6W CARBON RES	
	R245	QRD161J-132	1.3K 1/6W CARBON RES	
	R246	QRD161J-132	1.3K 1/6W CARBON RES	
	R251	QRD161J-392	3.9K 1/6W CARBON RES	
	R252	QRD161J-392	3.9K 1/6W CARBON RES	
	R253	QRD161J-752	7.5K 1/6W CARBON RES	
	R254	QRD161J-752	7.5K 1/6W CARBON RES	
	R255	QRD161J-561	560 1/6W CARBON RES	
	R256	QRD161J-561	560 1/6W CARBON RES	
	R257	QRD167J-223	22K 1/6W CARBON RES	
	R258	QRD167J-223	22K 1/6W CARBON RES	
	R259	QRD167J-332	3.3K 1/6W CARBON RES	
	R260	QRD167J-332	3.3K 1/6W CARBON RES	
	R261	QRD161J-684	680K 1/6W CARBON RES	
	R262	QRD161J-684	680K 1/6W CARBON RES	
	R263	QRD161J-393	39K 1/6W CARBON RES	
	R264	QRD161J-393	39K 1/6W CARBON RES	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R265	QRD167J-223	22K 1/6W CARBON RES	
	R266	QRD167J-223	22K 1/6W CARBON RES	
	R267	QRD161J-103	10K 1/6W CARBON RES	
	R268	QRD161J-105	1M 1/6W CARBON RES	
	R275	QRD161J-103	10K 1/6W CARBON RES	
	R276	QRD161J-103	10K 1/6W CARBON RES	
	R277	QRD167J-102	1K 1/6W CARBON RES	
	R278	QRD167J-471	470 1/6W CARBON RES	
	R281	QRD161J-432	4.3K 1/6W CARBON RES	
	R282	QRD161J-432	4.3K 1/6W CARBON RES	
	R301	QRD161J-103	10K 1/6W CARBON RES	
	R302	QRD161J-222	2.2K 1/6W CARBON RES	
	R303	QRD167J-102	1K 1/6W CARBON RES	
⚠	R304	QRZ0077-100	10 1/4W FUSIBLE RE	
⚠	R305	QRZ0077-100	10 1/4W FUSIBLE RE	
⚠	R307	QRD14CJ-100SX	10 1/4W UNF.CARBON	
⚠	R308	QRD14CJ-100SX	10 1/4W UNF.CARBON	
	R309	QRD167J-154	150K 1/6W CARBON RES	
	R310	QRD167J-154	150K 1/6W CARBON RES	
	R311	QRD161J-183	18K 1/6W CARBON RES	
	R312	QRD161J-183	18K 1/6W CARBON RES	
	R313	QRD161J-392	3.9K 1/6W CARBON RES	
	R314	QRD161J-103	10K 1/6W CARBON RES	
	R315	QRD161J-622	6.2K 1/6W CARBON RES	
	R316	QRD161J-472	4.7K 1/6W CARBON RES	
	R317	QRD167J-682	6.8K 1/6W CARBON RES	
	R318	QRD161J-912	9.1K 1/6W CARBON RES	
	R319	QRD161J-103	10K 1/6W CARBON RES	
	R320	QRD167J-682	6.8K 1/6W CARBON RES	
	R321	QRD161J-103	10K 1/6W CARBON RES	
	R351	QRD161J-181	180 1/6W CARBON RES	
	R352	QRD14CJ-6R8SX	6.8 1/4W UNF.CARBON	
	R353	QRD161J-563	56K 1/6W CARBON RES	
	R354	QRD161J-563	56K 1/6W CARBON RES	
	R357	QRD161J-271	270 1/6W CARBON RES	
	R358	QRD161J-331	330 1/6W CARBON RES	
	R360	QRD167J-332	3.3K 1/6W CARBON RES	
	R401	QRD161J-105	1M 1/6W CARBON RES	
	R402	QRD161J-271	270 1/6W CARBON RES	
	R403	QRD161J-271	270 1/6W CARBON RES	
	R404	QRD167J-430M	43 1/6W CARBON	
	R405	QRD161J-910Y	91 1/6W CARBON RES	
	R408	QRD161J-271	270 1/6W CARBON RES	
	R409	QRD161J-271	270 1/6W CARBON RES	
	R411	QRD161J-103	10K 1/6W CARBON RES	
	R412	QRD167J-223	22K 1/6W CARBON RES	
	R413	QRD161J-103	10K 1/6W CARBON RES	
	R414	QRD167J-102	1K 1/6W CARBON RES	
	R421	QRD167J-153	15K 1/6W CARBON RES	
	R422	QRD167J-151	150 1/6W CARBON RES	
	R423	QRD161J-103	10K 1/6W CARBON RES	
	R452	QRD161J-184	180K 1/6W CARBON RES	
	R453	QRD161J-224	220K 1/6W CARBON RES	
	R454	QRD161J-224	220K 1/6W CARBON RES	
	R455	QRD161J-224	220K 1/6W CARBON RES	
	R456	QRD161J-683	68K 1/6W CARBON RES	
	R457	QRD167J-153	15K 1/6W CARBON RES	
	R458	QRD161J-183	18K 1/6W CARBON RES	
	R461	QRD167J-682	6.8K 1/6W CARBON RES	
	R462	QRD167J-682	6.8K 1/6W CARBON RES	
	R463	QRD161J-123	12K 1/6W CARBON RES	
	R464	QRD161J-123	12K 1/6W CARBON RES	
	R465	QRD161J-563	56K 1/6W CARBON RES	
	R466	QRD161J-563	56K 1/6W CARBON RES	
	R467	QRD161J-163	16K 1/6W CARBON RES	
	R468	QRD161J-163	16K 1/6W CARBON RES	
	R469	QRD161J-183	18K 1/6W CARBON RES	
	R470	QRD161J-183	18K 1/6W CARBON RES	
	R471	QRD161J-103	10K 1/6W CARBON RES	
	R472	QRD161J-103	10K 1/6W CARBON RES	
	R475	QRD161J-103	10K 1/6W CARBON RES	
	R476	QRD161J-103	10K 1/6W CARBON RES	
	R501	QRD161J-221	220 1/6W CARBON RES	
	R502	QRD161J-221	220 1/6W CARBON RES	
	R503	QRD161J-391	390 1/6W CARBON RES	
	R504	QRD161J-391	390 1/6W CARBON RES	
	R510	QRD161J-333	33K 1/6W CARBON RES	
	RA401	QRB049J-103	10K 1/10W RESISTOR	
	RA402	QRB089J-103	10K 1/10W NETWORK RE	
	RA403	QRB049J-103	10K 1/10W RESISTOR	
	VR111	QVPA601-501A	500 TRIMMER RE	
	VR112	QVPA601-501A	500 TRIMMER RE	
	VR113	QVPA601-104A	100K TRIMMER RE	
	VR114	QVPA601-104A	100K TRIMMER RE	
	VR141	QVPA601-501A	500 TRIMMER RE	
	VR142	QVPA601-501A	500 TRIMMER RE	
	VR143	QVPA601-104A	100K TRIMMER RE	
	VR144	QVPA601-104A	100K TRIMMER RE	
	VR185	QVPA601-503A	50K TRIMMER RE	
	VR186	QVPA601-503A	50K TRIMMER RE	
	VR301	QVPA601-203A	20K VARIABLE R	
	VR302	QVPA601-203A	20K VARIABLE R	
	VR451	QVPA603-103A	10K TRIMMER RE	
	VR452	QVPA603-203A	20K VARIABLE	

⚠ SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		QWE350-05DD	S.WIRE	
		QXTS20H-015	TUBE	
		QWE351-10RR	VINYL WIRE	
		QWE350-10RR	S.WIRE	
		QWE351-24RR	S.WIRE	
		QWE354-10RR	S.WIRE	
	J408	EMV5109-009A	PIN PLUG	
	J409	EMV5109-009A	PIN PLUG	
	J410	EMV5133-003	CONNECT TER	
	J411	EMV5133-003	CONNECT TER	
	K101	ENZ8101-007	INDUCTOR	
	K102	ENZ8101-007	INDUCTOR	
	K103	ENZ8101-007	INDUCTOR	
	K104	ENZ8101-007	INDUCTOR	
	K105	ENZ8101-007	INDUCTOR	
	K106	ENZ8101-007	INDUCTOR	
	K107	ENZ8101-007	INDUCTOR	
	L109	EQL2106-223	INDUCTOR	
	L110	EQL2106-223	INDUCTOR	
	L151	EQL2106-223	INDUCTOR	
	L152	EQL2106-223	INDUCTOR	
	L301	ENZ2500-001	OSCILLATOR	
	L302	ENZ2500-001	OSCILLATOR	
	L351	ENZ6002-011	OSCILLATOR	
	L353	EQL4004-101	INDUCTOR	
	L354	EQL4004-101	INDUCTOR	
	L355	EQL4004-101	INDUCTOR	
	P101	QMV5011-003K	MALE CONNEC **3PIN**	
	P102	QMV5011-007K	MALE CONNEC **7PIN**	
	S501	ESB1100-007	LEAF SWITCH **A PARK**	
	S502	ESB1100-007	LEAF SWITCH **A Cro 2**	
	S503	ESB1100-007	LEAF SWITCH **REV REC**	
	S504	ESB1100-007	LEAF SWITCH **B Cro2**	
	S505	ESB1100-007	LEAF SWITCH **B PARK**	
	S506	ESB1100-007	LEAF SWITCH **B METAL**	
	S507	ESB1100-007	LEAF SWITCH **■ FWD REC**	
	S511	ESP0001-023M	TACT SWITCH **A◀**	
	S512	ESP0001-023M	TACT SWITCH **A◀◀**	
	S513	ESP0001-023M	TACT SWITCH **A▶▶**	
	S514	ESP0001-023M	TACT SWITCH **A▶**	
	S515	ESP0001-023M	TACT SWITCH **B◀**	
	S516	ESP0001-023M	TACT SWITCH **B◀◀**	
	S517	ESP0001-023M	TACT SWITCH **B▶▶**	
	S518	ESP0001-023M	TACT SWITCH **B▶**	
	S519	ESP0001-023M	TACT SWITCH **A■**	
	S520	ESP0001-023M	TACT SWITCH **B■**	
	S521	ESP0001-023M	TACT SWITCH **REC/REC MUTE**	
	S522	ESP0001-023M	TACT SWITCH **PAUSE**	
	S523	ESP0001-023M	TACT SWITCH **HIGH.SP.DUBBING**	
	S524	ESP0001-023M	TACT SWITCH **NORMAL DUBBING**	
	S525	ESP0001-023M	TACT SWITCH **BLANG SKIP**	
	S526	ESP0001-023M	TACT SWITCH **FUZZY DIRECT**	
	S527	ESP0001-023M	TACT SWITCH **FUZZY AUTO FADE**	
	S528	QSS4001-E01M	SLIDE SWITC **REV MODE**	
	S529	QSS4001-E01M	SLIDE SWITC **DOLBY MODE**	
	BC408	EWS269-A916	CONNECTOR W **9PIN**	
	BC409	EWS269-A916	CONNECTOR W **9PIN**	
	BC410	EWS243-054	SOCKET WIRE **2PIN**	
	BC411	EWS243-054	SOCKET WIRE **2PIN**	
	EP001	E70859-001	EARTH PLATE	
	FW401	EWR38B-16LST	FLAT WIRE A **8PIN**	
	FW402	EWR37B-10LST	FLAT WIRE A **7PIN**	
	FW403	EWR37B-10LST	FLAT WIRE A **7PIN**	
	FW404	EWR37B-10LST	FLAT WIRE A **7PIN**	
	FW405	EWR37B-10LST	FLAT WIRE A **7PIN**	
	FW406	EWR38B-08LST	FLAT WIRE A **8PIN**	
	FW407	EWR34B-08LST	FLAT WIRE A **4PIN**	
	FW410	EWR38B-16SST	FLAT WIRE A **8PIN**	
	JB001	EMV7141-015	PIN CONNECT **15PIN**	
	JT411	EMV7122-004	CONNECT TER **4PIN**	
	JT412	EMV7122-004	CONNECT TER **4PIN**	
	JT413	EMV7122-103	CONNECT TER **3PIN**	
	JT414	EMV7122-004	CONNECT TER **4PIN**	
	JT415	EMV7122-004	CONNECT TER **4PIN**	
	JT416	EMV7122-103	CONNECT TER **3PIN**	
	SW341	QSS6A12-E01	SLIDE SWITC **BEAT CUT SWITCH**	
	XT401	ECX0004-194KM	CERAMIC RES	

⚠ SAFETY PARTS